



Full wwPDB NMR Structure Validation Report ⓘ

Sep 8, 2026 – 06:32 PM EDT

PDB ID : 12UG / pdb_000012ug
BMRB ID : 31303
Title : NMR structure of HHQ13 peptide in 98% H₂SO₄
Authors : Zhang, J.Y.; Hong, M.
Deposited on : 2026-04-19

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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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
wwPDB-RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
wwPDB-ShiftChecker : v1.2
BMRB Restraints Analysis : v1.2.1
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

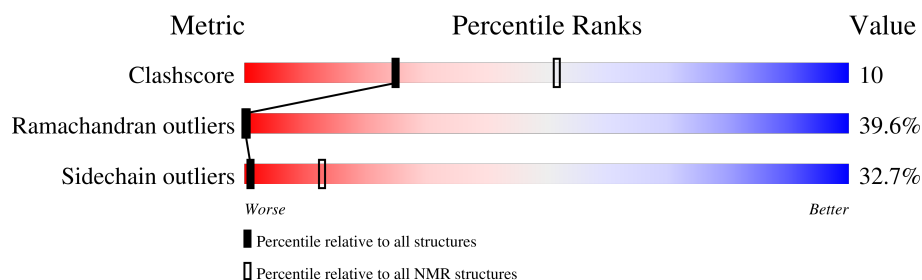
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment is 51%.

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	229148	14424
Ramachandran outliers	224038	12848
Sidechain outliers	223484	12823

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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	15	

2 Ensemble composition and analysis ⓘ

This entry contains 20 models. Model 17 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:1-A:13 (13)	1.28	17

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. No single-model clusters were found.

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

3 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 231 atoms, of which 121 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called HHQ13 peptide.

Mol	Chain	Residues	Atoms					Trace
1	A	15	Total	C	H	N	O	1
			231	71	121	23	16	

4 Residue-property plots [i](#)

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: HHQ13 peptide

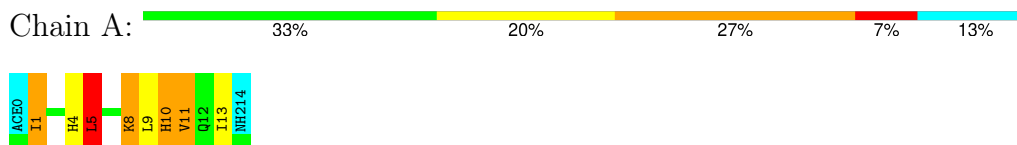


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

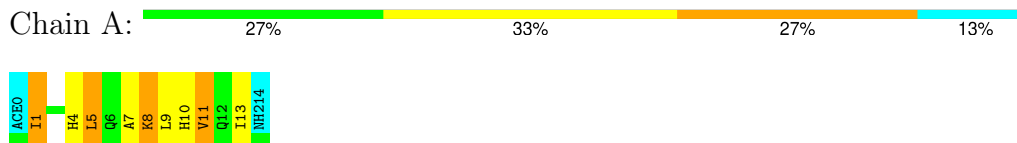
4.2.1 Score per residue for model 1

- Molecule 1: HHQ13 peptide



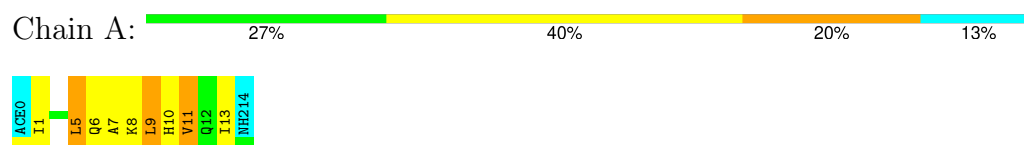
4.2.2 Score per residue for model 2

- Molecule 1: HHQ13 peptide



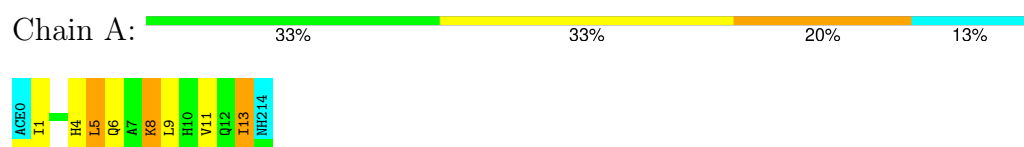
4.2.3 Score per residue for model 3

- Molecule 1: HHQ13 peptide



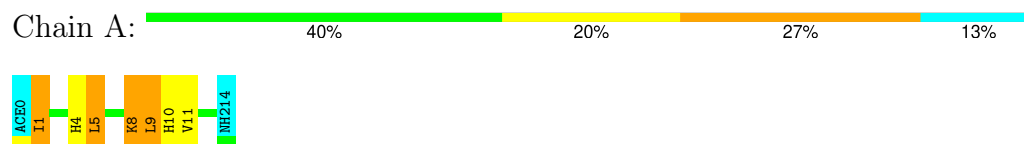
4.2.4 Score per residue for model 4

- Molecule 1: HHQ13 peptide



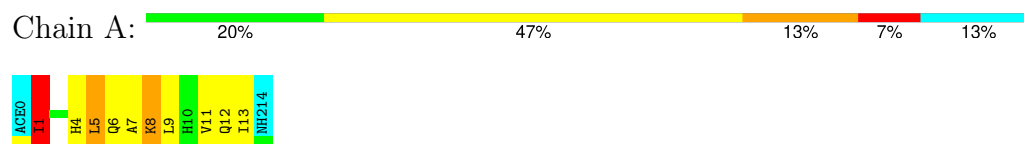
4.2.5 Score per residue for model 5

- Molecule 1: HHQ13 peptide



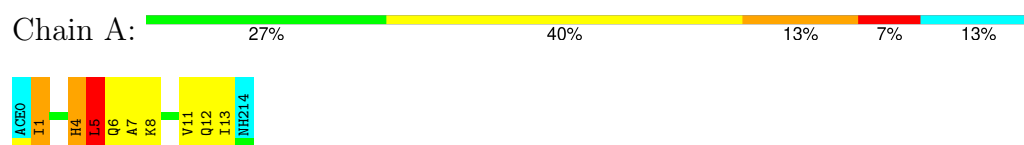
4.2.6 Score per residue for model 6

- Molecule 1: HHQ13 peptide



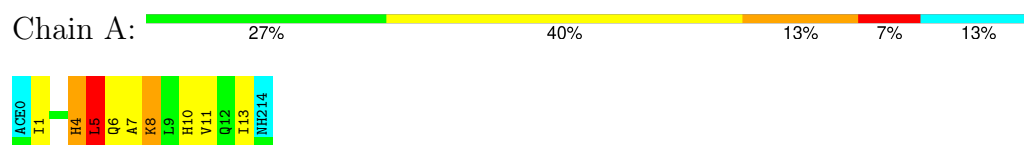
4.2.7 Score per residue for model 7

- Molecule 1: HHQ13 peptide



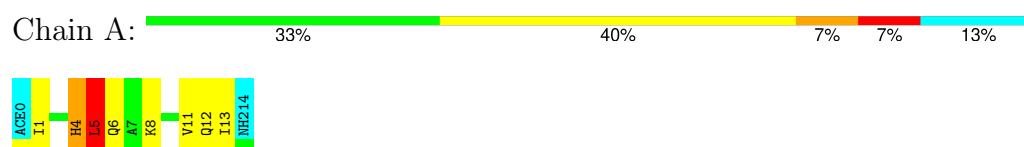
4.2.8 Score per residue for model 8

- Molecule 1: HHQ13 peptide



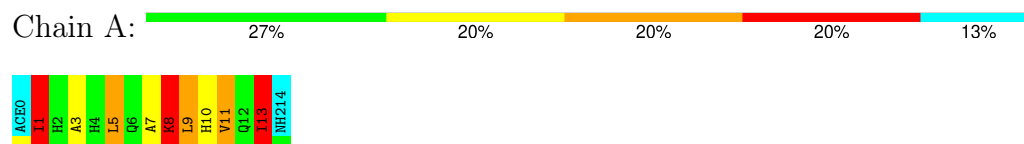
4.2.9 Score per residue for model 9

- Molecule 1: HHQ13 peptide



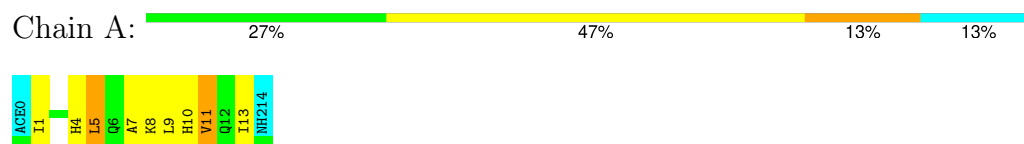
4.2.10 Score per residue for model 10

- Molecule 1: HHQ13 peptide



4.2.11 Score per residue for model 11

- Molecule 1: HHQ13 peptide



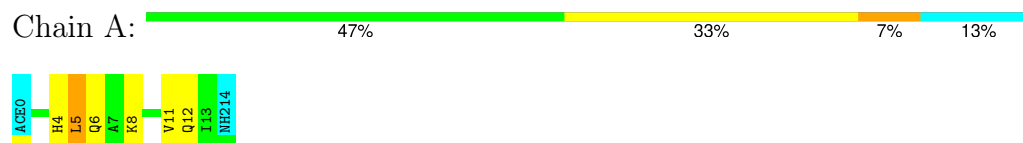
4.2.12 Score per residue for model 12

- Molecule 1: HHQ13 peptide



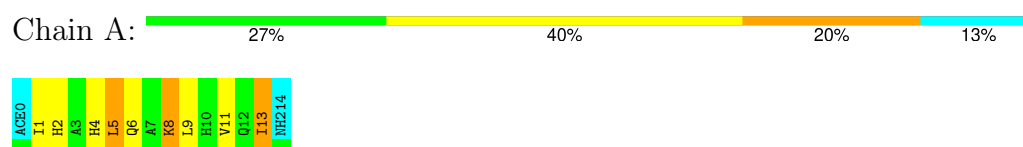
4.2.13 Score per residue for model 13

- Molecule 1: HHQ13 peptide



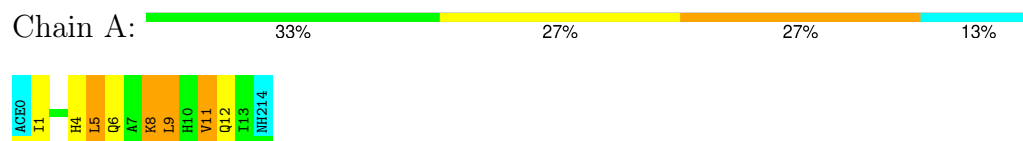
4.2.14 Score per residue for model 14

- Molecule 1: HHQ13 peptide



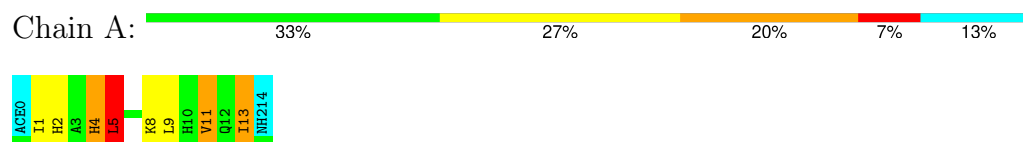
4.2.15 Score per residue for model 15

- Molecule 1: HHQ13 peptide



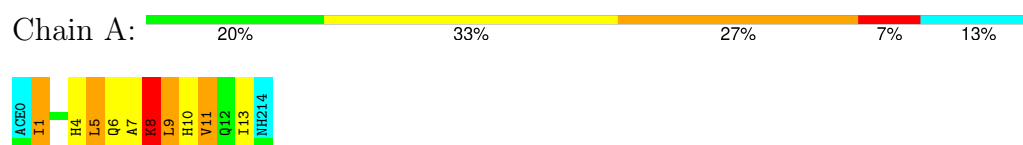
4.2.16 Score per residue for model 16

- Molecule 1: HHQ13 peptide



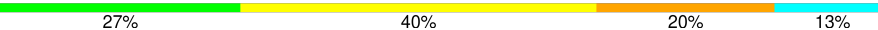
4.2.17 Score per residue for model 17 (medoid)

- Molecule 1: HHQ13 peptide



4.2.18 Score per residue for model 18

- Molecule 1: HHQ13 peptide

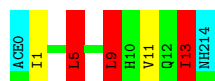
Chain A:  27% 40% 20% 13%



4.2.19 Score per residue for model 19

- Molecule 1: HHQ13 peptide

Chain A:  53% 13% 20% 13%



4.2.20 Score per residue for model 20

- Molecule 1: HHQ13 peptide

Chain A:  33% 40% 7% 7% 13%



5 Refinement protocol and experimental data overview

The models were refined using the following method: *na*.

Of the 1000 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
X-PLOR NIH	structure calculation	

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	1
Total number of shifts	155
Number of shifts mapped to atoms	155
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	51%

6 Model quality

6.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ACE, NH2

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	106	116	113	2±1
All	All	2120	2320	2260	46

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 11.

All unique clashes are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:12:GLN:O	1:A:13:ILE:HD13	0.65	1.92	6	1
1:A:5:LEU:HD22	1:A:13:ILE:HD11	0.61	1.71	1	2
1:A:8:LYS:HG2	1:A:9:LEU:HD23	0.57	1.75	15	1
1:A:9:LEU:HD12	1:A:10:HIS:N	0.54	2.16	1	1
1:A:11:VAL:HG22	1:A:13:ILE:H	0.53	1.64	14	1
1:A:4:HIS:C	1:A:5:LEU:HD23	0.52	2.30	7	4
1:A:5:LEU:CB	1:A:13:ILE:HD11	0.50	2.36	9	1
1:A:1:ILE:HD13	1:A:1:ILE:N	0.50	2.22	10	2
1:A:1:ILE:O	1:A:1:ILE:HG23	0.48	2.09	8	7
1:A:11:VAL:O	1:A:11:VAL:HG23	0.48	2.09	19	1
1:A:10:HIS:O	1:A:11:VAL:HG13	0.47	2.09	17	6
1:A:5:LEU:CD2	1:A:13:ILE:HD11	0.47	2.39	1	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:8:LYS:CG	1:A:9:LEU:HD23	0.46	2.39	17	3
1:A:8:LYS:HG3	1:A:9:LEU:HD23	0.46	1.88	17	1
1:A:5:LEU:HB3	1:A:13:ILE:HD13	0.46	1.87	16	1
1:A:12:GLN:O	1:A:13:ILE:HG23	0.45	2.10	18	1
1:A:3:ALA:O	1:A:13:ILE:HD11	0.44	2.12	10	1
1:A:10:HIS:C	1:A:11:VAL:HG23	0.42	2.39	18	1
1:A:5:LEU:HB3	1:A:13:ILE:HD11	0.42	1.91	9	1
1:A:9:LEU:HD11	1:A:12:GLN:HG2	0.42	1.90	20	1
1:A:9:LEU:C	1:A:9:LEU:HD12	0.42	2.40	6	1
1:A:8:LYS:HD2	1:A:9:LEU:HD23	0.42	1.92	5	1
1:A:8:LYS:HD2	1:A:9:LEU:HD21	0.42	1.92	10	1
1:A:5:LEU:HD22	1:A:13:ILE:HG12	0.42	1.90	20	1
1:A:9:LEU:N	1:A:9:LEU:HD23	0.41	2.30	19	1
1:A:11:VAL:HG12	1:A:13:ILE:HG13	0.41	1.92	18	1
1:A:9:LEU:HD12	1:A:9:LEU:C	0.40	2.41	1	1
1:A:5:LEU:CB	1:A:13:ILE:HD13	0.40	2.47	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	13/15 (87%)	4±1 (28±11%)	4±1 (33±11%)	5±1 (40±9%)	0	0
All	All	260/300 (87%)	72 (28%)	85 (33%)	103 (40%)	0	0

All 9 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	5	LEU	20
1	A	11	VAL	17
1	A	8	LYS	16
1	A	1	ILE	15
1	A	7	ALA	10
1	A	13	ILE	10

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Mol	Chain	Res	Type	Models (Total)
1	A	6	GLN	10
1	A	2	HIS	3
1	A	9	LEU	2

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	11/11 (100%)	7±1 (67±11%)	4±1 (33±11%)	1	13
All	All	220/220 (100%)	148 (67%)	72 (33%)	1	13

All 9 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	5	LEU	20
1	A	4	HIS	17
1	A	9	LEU	11
1	A	8	LYS	9
1	A	13	ILE	5
1	A	1	ILE	4
1	A	10	HIS	3
1	A	11	VAL	2
1	A	12	GLN	1

6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

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 51% for the well-defined parts and 51% for the entire structure.

7.1 Chemical shift list 1

File name: `working_cs.cif`

Chemical shift list name: *starch_output*

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	155
Number of shifts mapped to atoms	155
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	1

- Can not parse the chemical shift value. All 49 occurrences are reported below.

List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	1	ILE	HG12	0.816	.	.
1	A	1	ILE	HG13	1.081	.	.
1	A	2	HIS	HB2	3.047	.	.
1	A	2	HIS	HB3	3.115	.	.
1	A	4	HIS	HB2	3.053	.	.
1	A	4	HIS	HB3	3.104	.	.
1	A	5	LEU	HB2	1.319	.	.
1	A	5	LEU	HB3	1.604	.	.
1	A	5	LEU	HD11	0.534	.	.
1	A	5	LEU	HD12	0.534	.	.
1	A	5	LEU	HD13	0.534	.	.
1	A	5	LEU	HD21	0.558	.	.
1	A	5	LEU	HD22	0.558	.	.
1	A	5	LEU	HD23	0.558	.	.
1	A	5	LEU	CD1	21.387	.	.
1	A	5	LEU	CD2	23.270	.	.
1	A	6	GLN	HB2	2.073	.	.

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List ID	Chain	Res	Type	Atom	Shift Data		
					Value	Uncertainty	Ambiguity
1	A	6	GLN	HB3	2.006	.	.
1	A	6	GLN	HG3	2.478	.	.
1	A	8	LYS	HB3	1.635	.	.
1	A	8	LYS	HD3	1.341	.	.
1	A	8	LYS	HE3	2.706	.	.
1	A	8	LYS	HG3	1.084	.	.
1	A	9	LEU	HB2	1.588	.	.
1	A	9	LEU	HB3	1.313	.	.
1	A	9	LEU	HD11	0.525	.	.
1	A	9	LEU	HD12	0.525	.	.
1	A	9	LEU	HD13	0.525	.	.
1	A	9	LEU	HD21	0.556	.	.
1	A	9	LEU	HD22	0.556	.	.
1	A	9	LEU	HD23	0.556	.	.
1	A	9	LEU	CD1	21.379	.	.
1	A	9	LEU	CD2	23.308	.	.
1	A	10	HIS	HB3	3.100	.	.
1	A	11	VAL	HG11	0.570	.	.
1	A	11	VAL	HG12	0.570	.	.
1	A	11	VAL	HG13	0.570	.	.
1	A	11	VAL	HG21	0.603	.	.
1	A	11	VAL	HG22	0.603	.	.
1	A	11	VAL	HG23	0.603	.	.
1	A	11	VAL	CG1	18.344	.	.
1	A	11	VAL	CG2	19.665	.	.
1	A	12	GLN	HB3	2.073	.	.
1	A	12	GLN	HE21	8.261	.	.
1	A	12	GLN	HE22	7.771	.	.
1	A	12	GLN	HG2	2.433	.	.
1	A	12	GLN	HG3	2.511	.	.
1	A	13	ILE	HG12	0.856	.	.
1	A	13	ILE	HG13	1.139	.	.

7.1.2 Chemical shift referencing ⓘ

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

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 51%, i.e. 103 atoms were assigned a chemical

shift out of a possible 201. 0 out of 3 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	¹ H	¹³ C	¹⁵ N
Backbone	50/65 (77%)	26/26 (100%)	13/26 (50%)	11/13 (85%)
Sidechain	50/112 (45%)	23/75 (31%)	26/34 (76%)	1/3 (33%)
Aromatic	3/24 (12%)	3/12 (25%)	0/6 (0%)	0/6 (0%)
Overall	103/201 (51%)	52/113 (46%)	39/66 (59%)	12/22 (55%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 51%, i.e. 103 atoms were assigned a chemical shift out of a possible 201. 0 out of 3 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	¹ H	¹³ C	¹⁵ N
Backbone	50/65 (77%)	26/26 (100%)	13/26 (50%)	11/13 (85%)
Sidechain	50/112 (45%)	23/75 (31%)	26/34 (76%)	1/3 (33%)
Aromatic	3/24 (12%)	3/12 (25%)	0/6 (0%)	0/6 (0%)
Overall	103/201 (51%)	52/113 (46%)	39/66 (59%)	12/22 (55%)

7.1.4 Statistically unusual chemical shifts [i](#)

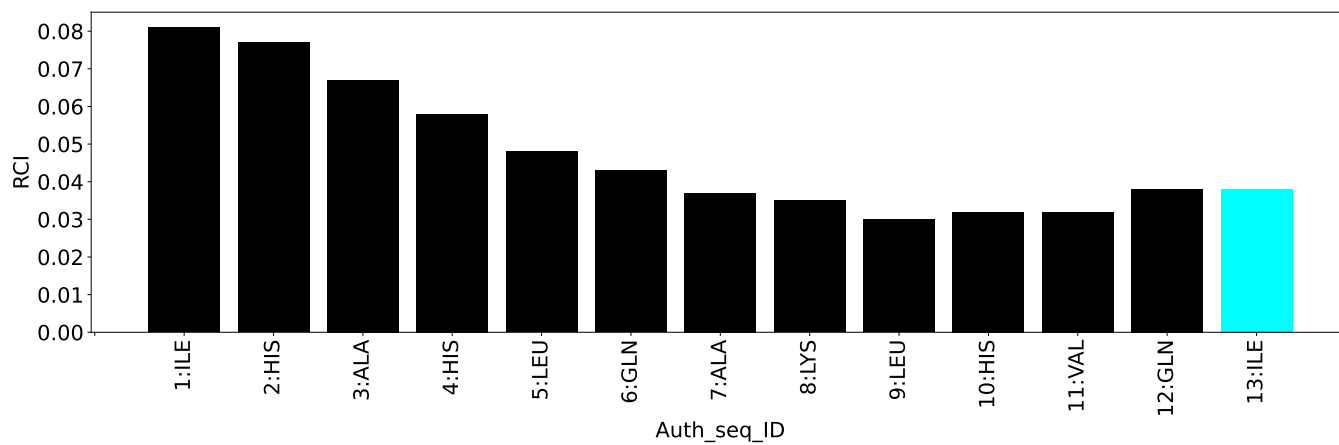
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, ppm	Expected range, ppm	Z-score
1	A	12	GLN	NE2	130.66	103.38 – 120.35	11.1

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:



8 NMR restraints analysis

8.1 Conformationally restricting restraints

The following table provides the summary of experimentally observed NMR restraints in different categories. Restraints are classified into different categories based on the sequence separation of the atoms involved.

Description	Value
Total distance restraints	250
Intra-residue ($ i-j =0$)	94
Sequential ($ i-j =1$)	102
Medium range ($ i-j >1$ and $ i-j <5$)	40
Long range ($ i-j \geq 5$)	14
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	0
Total dihedral-angle restraints	0
Number of unmapped restraints	0
Number of restraints per residue	16.7
Number of long range restraints per residue ¹	0.9

¹Long range hydrogen bonds and disulfide bonds are counted as long range restraints while calculating the number of long range restraints per residue

8.2 Residual restraint violations

This section provides the overview of the restraint violations analysis. The violations are binned as small, medium and large violations based on its absolute value. Average number of violations per model is calculated by dividing the total number of violations in each bin by the size of the ensemble.

8.2.1 Average number of distance violations per model

Distance violations less than 0.1 Å are not included in the calculation.

Bins (Å)	Average number of violations per model	Max (Å)
0.1-0.2 (Small)	6.4	0.2
0.2-0.5 (Medium)	7.0	0.5
>0.5 (Large)	6.0	1.81

8.2.2 Average number of dihedral-angle violations per model [i](#)

Dihedral-angle violations less than 1° are not included in the calculation. There are no dihedral-angle violations

9 Distance violation analysis ⓘ

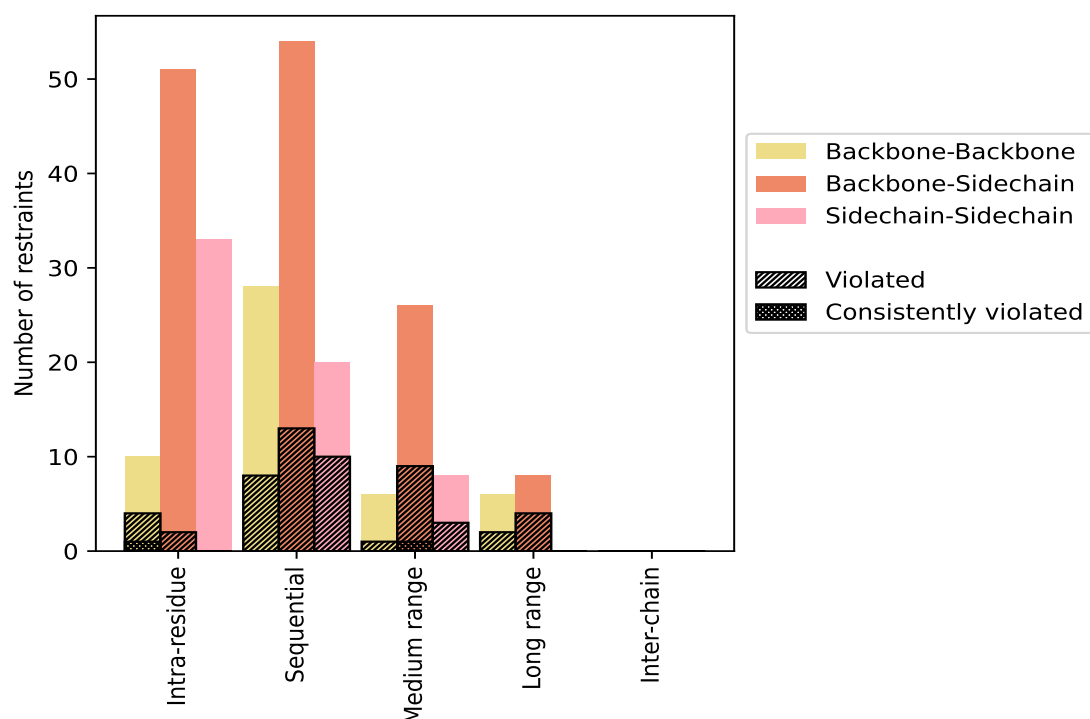
9.1 Summary of distance violations ⓘ

The following table shows the summary of distance violations in different restraint categories based on the sequence separation of the atoms involved. Each category is further sub-divided into three sub-categories based on the atoms involved. Violations less than 0.1 Å are not included in the statistics.

Restrains type	Count	% ¹	Violated ³			Consistently Violated ⁴		
			Count	% ²	% ¹	Count	% ²	% ¹
Intra-residue ($i-j =0$)	94	37.6	6	6.4	2.4	1	1.1	0.4
Backbone-Backbone	10	4.0	4	40.0	1.6	1	10.0	0.4
Backbone-Sidechain	51	20.4	2	3.9	0.8	0	0.0	0.0
Sidechain-Sidechain	33	13.2	0	0.0	0.0	0	0.0	0.0
Sequential ($i-j =1$)	102	40.8	31	30.4	12.4	0	0.0	0.0
Backbone-Backbone	28	11.2	8	28.6	3.2	0	0.0	0.0
Backbone-Sidechain	54	21.6	13	24.1	5.2	0	0.0	0.0
Sidechain-Sidechain	20	8.0	10	50.0	4.0	0	0.0	0.0
Medium range ($i-j >1$ & $i-j <5$)	40	16.0	13	32.5	5.2	1	2.5	0.4
Backbone-Backbone	6	2.4	1	16.7	0.4	0	0.0	0.0
Backbone-Sidechain	26	10.4	9	34.6	3.6	1	3.8	0.4
Sidechain-Sidechain	8	3.2	3	37.5	1.2	0	0.0	0.0
Long range ($i-j \geq 5$)	14	5.6	6	42.9	2.4	0	0.0	0.0
Backbone-Backbone	6	2.4	2	33.3	0.8	0	0.0	0.0
Backbone-Sidechain	8	3.2	4	50.0	1.6	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Inter-chain	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Backbone	0	0.0	0	0.0	0.0	0	0.0	0.0
Backbone-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Sidechain-Sidechain	0	0.0	0	0.0	0.0	0	0.0	0.0
Hydrogen bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Disulfide bond	0	0.0	0	0.0	0.0	0	0.0	0.0
Total	250	100.0	56	22.4	22.4	2	0.8	0.8
Backbone-Backbone	50	20.0	15	30.0	6.0	1	2.0	0.4
Backbone-Sidechain	139	55.6	28	20.1	11.2	1	0.7	0.4
Sidechain-Sidechain	61	24.4	13	21.3	5.2	0	0.0	0.0

¹ percentage calculated with respect to the total number of distance restraints, ² percentage calculated with respect to the number of restraints in a particular restraint category, ³ violated in at least one model, ⁴ violated in all the models

9.1.1 Bar chart : Distribution of distance restraints and violations [i](#)



Violated and consistently violated restraints are shown using different hatch patterns in their respective categories. The hydrogen bonds and disulfied bonds are counted in their appropriate category on the x-axis

9.2 Distance violation statistics for each model [i](#)

The following table provides the distance violation statistics for each model in the ensemble. Violations less than 0.1 Å are not included in the statistics.

Model ID	Number of violations						Mean (Å)	Max (Å)	SD ⁶ (Å)	Median (Å)
	IR ¹	SQ ²	MR ³	LR ⁴	IC ⁵	Total				
1	2	11	4	2	0	19	0.6	1.4	0.44	0.45
2	2	10	2	2	0	16	0.44	1.63	0.4	0.24
3	2	14	3	2	0	21	0.41	1.75	0.37	0.27
4	3	8	5	2	0	18	0.41	1.68	0.38	0.24
5	2	8	5	2	0	17	0.57	1.35	0.39	0.37
6	2	7	6	3	0	18	0.45	1.78	0.42	0.25
7	2	8	4	2	0	16	0.51	1.81	0.41	0.37
8	2	10	6	2	0	20	0.59	1.54	0.37	0.58
9	3	10	5	2	0	20	0.39	1.77	0.39	0.26
10	4	10	6	2	0	22	0.42	1.78	0.42	0.24

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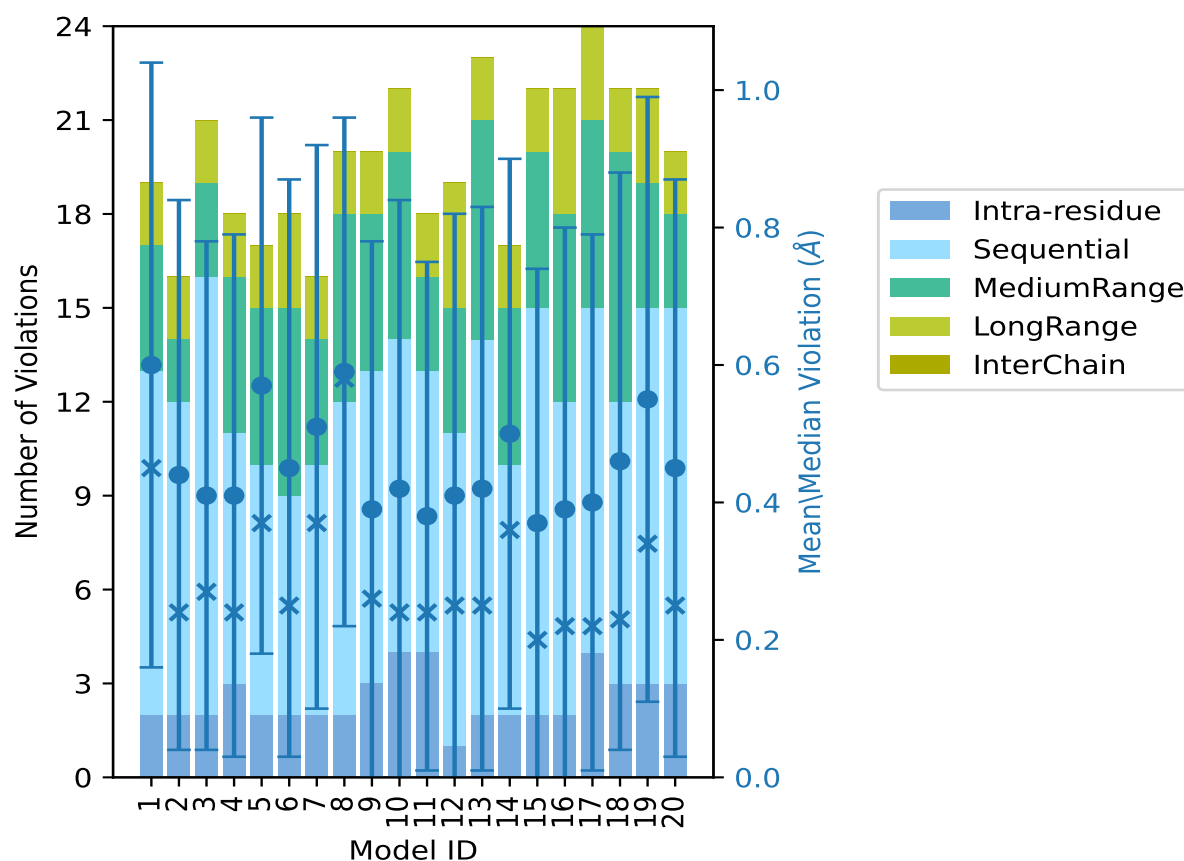
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Model ID	Number of violations						Mean (Å)	Max (Å)	SD ⁶ (Å)	Median (Å)
	IR ¹	SQ ²	MR ³	LR ⁴	IC ⁵	Total				
11	4	9	3	2	0	18	0.38	1.63	0.37	0.24
12	1	10	4	4	0	19	0.41	1.78	0.41	0.25
13	2	12	7	2	0	23	0.42	1.76	0.41	0.25
14	2	8	5	2	0	17	0.5	1.77	0.4	0.36
15	2	13	5	2	0	22	0.37	1.68	0.37	0.2
16	2	10	6	4	0	22	0.39	1.8	0.41	0.22
17	4	11	6	3	0	24	0.4	1.69	0.39	0.22
18	3	9	8	2	0	22	0.46	1.54	0.42	0.23
19	3	12	4	3	0	22	0.55	1.35	0.44	0.34
20	3	12	3	2	0	20	0.45	1.35	0.42	0.25

¹Intra-residue restraints, ²Sequential restraints, ³Medium range restraints, ⁴Long range restraints,

⁵Inter-chain restraints, ⁶Standard deviation

9.2.1 Bar graph : Distance Violation statistics for each model ⓘ



The mean(dot),median(x) and the standard deviation are shown in blue with respect to the y axis on the right

9.3 Distance violation statistics for the ensemble

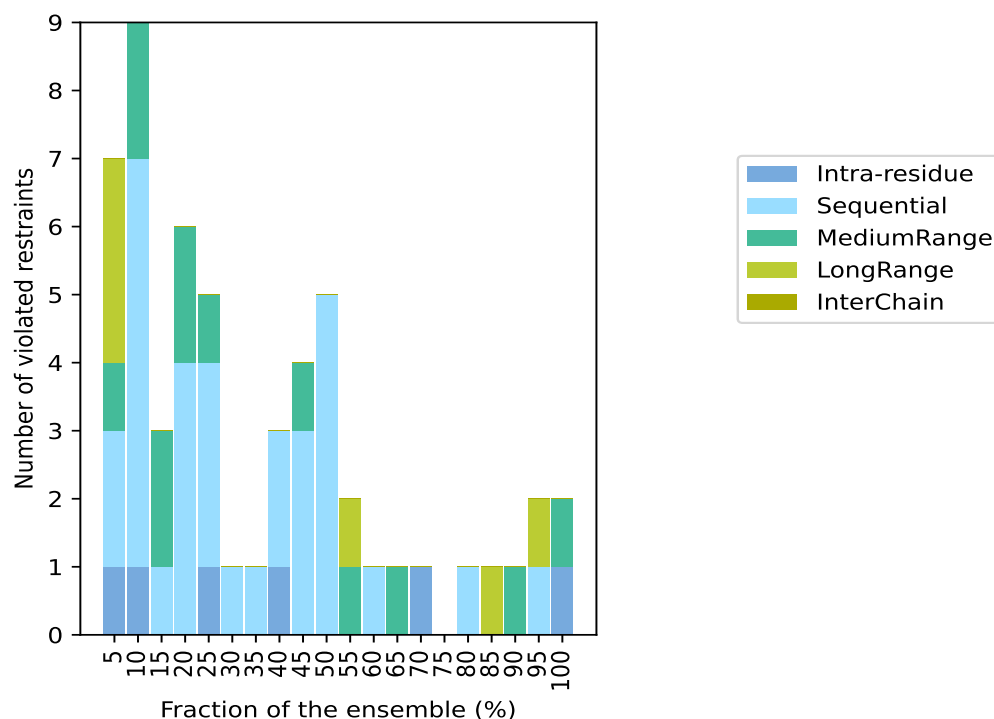
Violation analysis may find that some restraints are violated in few models and some are violated in most of models. The following table provides this information as number of violated restraints for a given fraction of the ensemble. In total, 194(IR:88, SQ:71, MR:27, LR:8, IC:0) restraints are not violated in the ensemble.

Number of violated restraints						Fraction of the ensemble	
IR ¹	SQ ²	MR ³	LR ⁴	IC ⁵	Total	Count ⁶	%
1	2	1	3	0	7	1	5.0
1	6	2	0	0	9	2	10.0
0	1	2	0	0	3	3	15.0
0	4	2	0	0	6	4	20.0
1	3	1	0	0	5	5	25.0
0	1	0	0	0	1	6	30.0
0	1	0	0	0	1	7	35.0
1	2	0	0	0	3	8	40.0
0	3	1	0	0	4	9	45.0
0	5	0	0	0	5	10	50.0
0	0	1	1	0	2	11	55.0
0	1	0	0	0	1	12	60.0
0	0	1	0	0	1	13	65.0
1	0	0	0	0	1	14	70.0
0	0	0	0	0	0	15	75.0
0	1	0	0	0	1	16	80.0
0	0	0	1	0	1	17	85.0
0	0	1	0	0	1	18	90.0
0	1	0	1	0	2	19	95.0
1	0	1	0	0	2	20	100.0

¹Intra-residue restraints, ²Sequential restraints, ³Medium range restraints, ⁴Long range restraints,

⁵Inter-chain restraints, ⁶ Number of models with violations

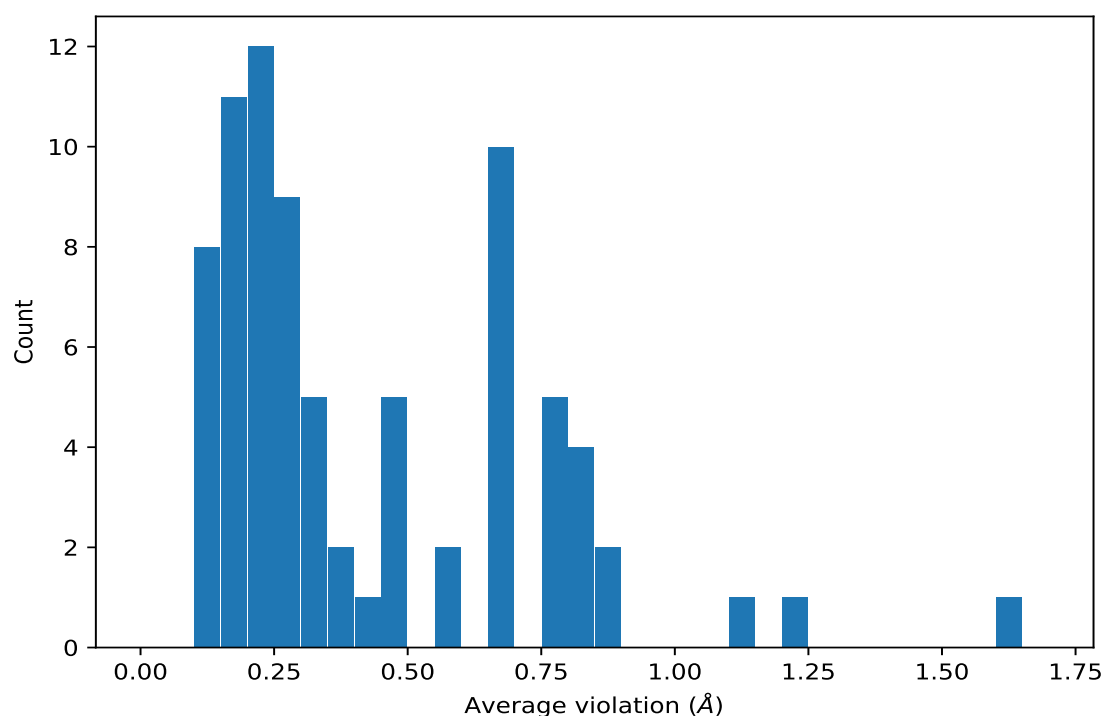
9.3.1 Bar graph : Distance violation statistics for the ensemble [i](#)



9.4 Most violated distance restraints in the ensemble [i](#)

9.4.1 Histogram : Distribution of mean distance violations [i](#)

The following histogram shows the distribution of the average value of the violation. The average is calculated for each restraint that is violated in more than one model over all the violated models in the ensemble



9.4.2 Table: Most violated distance restraints [i](#)

The following table provides the mean and the standard deviation of the violation for each restraint sorted by number of violated models and the mean value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint. Rows with same key represent combinatorial or ambiguous restraints and are counted as a single restraint.

Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	20	1.62	0.2	1.68
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	20	0.23	0.03	0.24
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	19	0.67	0.22	0.67
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG2	19	0.67	0.22	0.67
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG3	19	0.67	0.22	0.67
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG3	19	0.67	0.22	0.67
(1,229)	1:10:A:HIS:H	1:13:A:ILE:HG12	19	0.26	0.16	0.21
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	19	0.26	0.16	0.21
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB1	18	0.66	0.22	0.7
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	18	0.66	0.22	0.7
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB3	18	0.66	0.22	0.7
(1,223)	1:13:A:ILE:H	1:4:A:HIS:HA	17	0.65	0.19	0.73
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	17	0.65	0.19	0.73
(1,223)	1:13:A:ILE:H	1:2:A:HIS:HA	17	0.65	0.19	0.73
(1,212)	1:8:A:LYS:HZ2	1:7:A:ALA:HA	16	0.81	0.39	0.89
(1,212)	1:8:A:LYS:HZ1	1:7:A:ALA:HA	16	0.81	0.39	0.89

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Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(1,212)	1:8:A:LYS:HZ2	1:13:A:ILE:HA	16	0.81	0.39	0.89
(1,212)	1:8:A:LYS:HZ3	1:7:A:ALA:HA	16	0.81	0.39	0.89
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	14	0.11	0.0	0.11
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	13	0.31	0.18	0.24
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG3	13	0.31	0.18	0.24
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	12	0.48	0.22	0.4
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE3	12	0.48	0.22	0.4
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	11	0.28	0.11	0.24
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	11	0.22	0.06	0.2
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB2	10	0.49	0.24	0.5
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB3	10	0.49	0.24	0.5
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB1	10	0.49	0.24	0.5
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	10	0.38	0.07	0.4
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	10	0.38	0.07	0.4
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	10	0.31	0.13	0.31
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	10	0.24	0.11	0.22
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	10	0.19	0.04	0.19
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	9	1.22	0.1	1.19
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	9	0.57	0.31	0.46
(1,214)	1:10:A:HIS:H	1:8:A:LYS:HE3	9	0.57	0.31	0.46
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	9	0.27	0.07	0.26
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	9	0.14	0.02	0.13
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ1	8	0.76	0.33	0.71
(1,207)	1:10:A:HIS:H	1:8:A:LYS:HZ2	8	0.76	0.33	0.71
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ3	8	0.76	0.33	0.71
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ2	8	0.76	0.33	0.71
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	8	0.18	0.04	0.18
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	8	0.11	0.01	0.11
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	7	0.12	0.01	0.12
(1,162)	1:6:A:GLN:HB3	1:5:A:LEU:HG	6	0.86	0.26	0.92
(1,162)	1:6:A:GLN:HB3	1:9:A:LEU:HG	6	0.86	0.26	0.92
(1,227)	1:2:A:HIS:HB3	1:1:A:ILE:HG12	5	0.28	0.11	0.25
(1,19)	1:1:A:ILE:H	1:1:A:ILE:HA	5	0.27	0.0	0.27
(1,4)	1:3:A:ALA:H	1:2:A:HIS:HA	5	0.22	0.07	0.25
(1,65)	1:10:A:HIS:HA	1:11:A:VAL:HA	5	0.16	0.02	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB3	5	0.14	0.03	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB2	5	0.14	0.03	0.16
(1,33)	1:3:A:ALA:HA	1:2:A:HIS:HB3	4	1.1	0.02	1.1
(1,222)	1:4:A:HIS:HB2	1:6:A:GLN:HG2	4	0.4	0.16	0.4
(1,163)	1:6:A:GLN:HG2	1:5:A:LEU:HG	4	0.34	0.18	0.35
(1,163)	1:6:A:GLN:HG2	1:9:A:LEU:HG	4	0.34	0.18	0.35
(1,11)	1:2:A:HIS:H	1:1:A:ILE:HA	4	0.18	0.05	0.17

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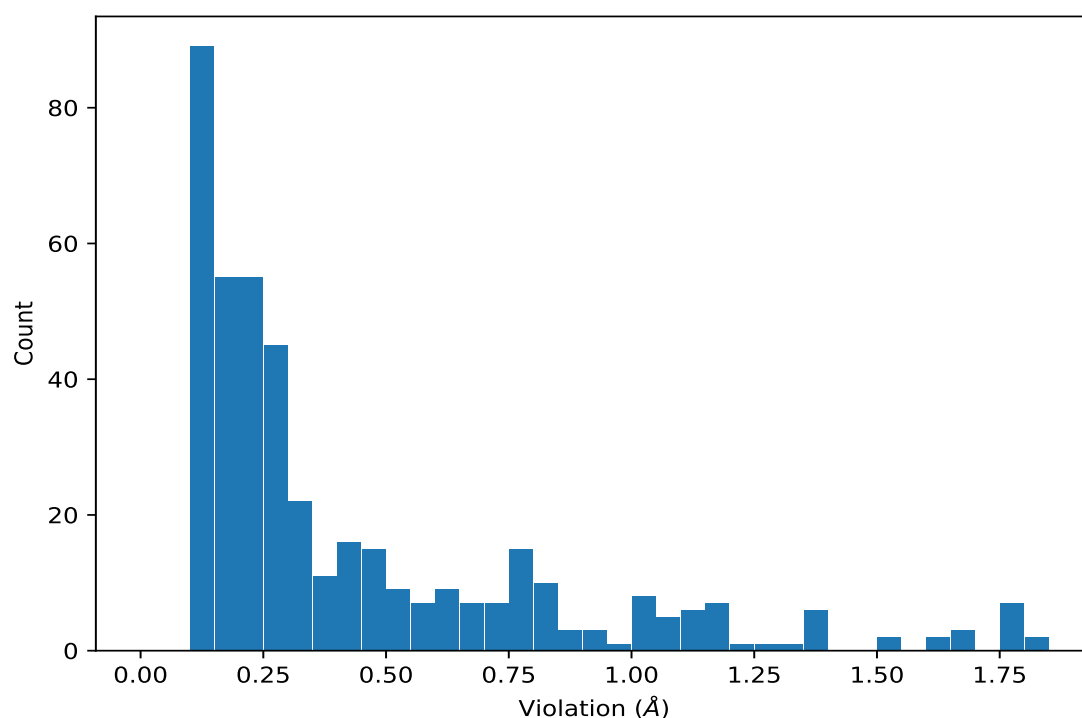
Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(1,232)	1:11:A:VAL:HB	1:13:A:ILE:HG12	4	0.15	0.04	0.15
(1,12)	1:2:A:HIS:H	1:1:A:ILE:HB	4	0.12	0.01	0.13
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG11	3	0.2	0.04	0.21
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG12	3	0.2	0.04	0.21
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG13	3	0.2	0.04	0.21
(1,224)	1:11:A:VAL:HA	1:13:A:ILE:HB	3	0.19	0.03	0.21
(1,192)	1:12:A:GLN:HB3	1:13:A:ILE:HB	3	0.15	0.01	0.15
(1,192)	1:12:A:GLN:HB2	1:13:A:ILE:HB	3	0.15	0.01	0.15
(1,226)	1:2:A:HIS:HB3	1:1:A:ILE:HG13	2	0.78	0.16	0.78
(1,204)	1:12:A:GLN:HB3	1:13:A:ILE:HG13	2	0.26	0.07	0.26
(1,204)	1:12:A:GLN:HB2	1:13:A:ILE:HG13	2	0.26	0.07	0.26
(1,9)	1:7:A:ALA:H	1:6:A:GLN:HA	2	0.25	0.01	0.25
(1,25)	1:5:A:LEU:H	1:4:A:HIS:HA	2	0.24	0.04	0.24
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB1	2	0.2	0.04	0.2
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB2	2	0.2	0.04	0.2
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB3	2	0.2	0.04	0.2
(1,225)	1:11:A:VAL:HB	1:13:A:ILE:HB	2	0.2	0.04	0.2
(1,49)	1:8:A:LYS:H	1:8:A:LYS:HD3	2	0.18	0.03	0.18
(1,49)	1:8:A:LYS:H	1:8:A:LYS:HD2	2	0.18	0.03	0.18
(1,231)	1:11:A:VAL:HA	1:13:A:ILE:HG12	2	0.15	0.02	0.15
(1,201)	1:12:A:GLN:H	1:13:A:ILE:HG13	2	0.12	0.0	0.12

¹Number of violated models, ²Standard deviation

9.5 All violated distance restraints [i](#)

9.5.1 Histogram : Distribution of distance violations [i](#)

The following histogram shows the distribution of the absolute value of the violation for all violated restraints in the ensemble.



9.5.2 Table : All distance violations [i](#)

The following table lists the absolute value of the violation for each restraint in the ensemble sorted by its value. The Key (restraint list ID, restraint ID) is the unique identifier for a given restraint. Rows with same key represent combinatorial or ambiguous restraints and are counted as a single restraint.

Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	7	1.81
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	16	1.8
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	6	1.78
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	10	1.78
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	12	1.78
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	9	1.77
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	14	1.77
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	13	1.76
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	3	1.75
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	17	1.69
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	4	1.68
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	15	1.68
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	2	1.63
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	11	1.63
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	8	1.54
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	18	1.54

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,212)	1:8:A:LYS:HZ2	1:7:A:ALA:HA	1	1.4
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	1	1.4
(1,212)	1:8:A:LYS:HZ3	1:7:A:ALA:HA	18	1.39
(1,207)	1:10:A:HIS:H	1:8:A:LYS:HZ2	5	1.35
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	19	1.35
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	20	1.35
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	1	1.3
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	19	1.28
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	19	1.24
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	18	1.2
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	13	1.19
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	20	1.19
(1,212)	1:8:A:LYS:HZ2	1:7:A:ALA:HA	20	1.18
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	6	1.18
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	10	1.18
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	16	1.17
(1,35)	1:7:A:ALA:HA	1:5:A:LEU:HB3	5	1.14
(1,162)	1:6:A:GLN:HB3	1:5:A:LEU:HG	8	1.12
(1,33)	1:3:A:ALA:HA	1:2:A:HIS:HB3	12	1.11
(1,33)	1:3:A:ALA:HA	1:2:A:HIS:HB3	14	1.11
(1,212)	1:8:A:LYS:HZ1	1:7:A:ALA:HA	17	1.1
(1,33)	1:3:A:ALA:HA	1:2:A:HIS:HB3	16	1.1
(1,212)	1:8:A:LYS:HZ3	1:7:A:ALA:HA	9	1.06
(1,33)	1:3:A:ALA:HA	1:2:A:HIS:HB3	13	1.06
(1,212)	1:8:A:LYS:HZ1	1:7:A:ALA:HA	19	1.05
(1,162)	1:6:A:GLN:HB3	1:5:A:LEU:HG	1	1.05
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	5	1.05
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ1	19	1.04
(1,162)	1:6:A:GLN:HB3	1:5:A:LEU:HG	20	1.04
(1,160)	1:6:A:GLN:HA	1:4:A:HIS:HB3	3	1.02
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	1	1.02
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ1	17	1.01
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	19	1.01
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	8	1.01
(1,212)	1:8:A:LYS:HZ3	1:7:A:ALA:HA	8	1.0
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE3	5	0.98
(1,212)	1:8:A:LYS:HZ1	1:7:A:ALA:HA	2	0.94
(1,226)	1:2:A:HIS:HB3	1:1:A:ILE:HG13	10	0.93
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	19	0.92
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB1	1	0.89
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ3	8	0.86
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	14	0.86

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	5	0.85
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	18	0.85
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	20	0.85
(1,212)	1:8:A:LYS:HZ1	1:7:A:ALA:HA	4	0.84
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	8	0.82
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	10	0.81
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	15	0.81
(1,162)	1:6:A:GLN:HB3	1:5:A:LEU:HG	19	0.81
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB1	7	0.8
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB3	15	0.8
(1,162)	1:6:A:GLN:HB3	1:9:A:LEU:HG	5	0.79
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB1	17	0.79
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	3	0.78
(1,223)	1:13:A:ILE:H	1:4:A:HIS:HA	1	0.77
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	11	0.77
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB3	4	0.77
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB1	7	0.77
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	11	0.77
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	5	0.77
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB1	18	0.77
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	7	0.76
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	6	0.76
(1,212)	1:8:A:LYS:HZ2	1:13:A:ILE:HA	5	0.76
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG3	17	0.76
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	18	0.76
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	2	0.74
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	10	0.74
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	15	0.74
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	7	0.73
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	9	0.73
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	8	0.73
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB3	11	0.73
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	12	0.7
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	13	0.68
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	12	0.68
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	2	0.67
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB1	2	0.67
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	13	0.66
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	8	0.65
(1,212)	1:8:A:LYS:HZ2	1:7:A:ALA:HA	14	0.64
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB3	8	0.64
(1,214)	1:10:A:HIS:H	1:8:A:LYS:HE3	8	0.63

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,226)	1:2:A:HIS:HB3	1:1:A:ILE:HG13	6	0.62
(1,222)	1:4:A:HIS:HB2	1:6:A:GLN:HG2	6	0.62
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG3	14	0.62
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB3	15	0.61
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	4	0.61
(1,138)	1:7:A:ALA:HA	1:6:A:GLN:HG2	7	0.61
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	1	0.59
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	3	0.59
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG3	7	0.57
(1,212)	1:8:A:LYS:HZ3	1:7:A:ALA:HA	12	0.56
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ1	18	0.56
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG2	20	0.55
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	10	0.55
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG3	9	0.54
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	13	0.54
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	19	0.53
(1,163)	1:6:A:GLN:HG2	1:5:A:LEU:HG	8	0.53
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE3	17	0.53
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB3	4	0.51
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	14	0.51
(1,229)	1:10:A:HIS:H	1:13:A:ILE:HG12	1	0.5
(1,163)	1:6:A:GLN:HG2	1:5:A:LEU:HG	9	0.5
(1,227)	1:2:A:HIS:HB3	1:1:A:ILE:HG12	3	0.49
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	4	0.49
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	4	0.49
(1,223)	1:13:A:ILE:H	1:4:A:HIS:HA	16	0.48
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG2	6	0.48
(1,223)	1:13:A:ILE:H	1:2:A:HIS:HA	17	0.47
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	9	0.47
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	9	0.47
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	15	0.47
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	15	0.47
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	19	0.47
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	10	0.46
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ2	20	0.46
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ1	1	0.45
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	3	0.45
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	16	0.43
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	1	0.42
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	4	0.42
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	4	0.42
(1,222)	1:4:A:HIS:HB2	1:6:A:GLN:HG2	8	0.41

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,212)	1:8:A:LYS:HZ2	1:7:A:ALA:HA	15	0.41
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	12	0.41
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	12	0.41
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	13	0.41
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	19	0.41
(1,222)	1:4:A:HIS:HB2	1:6:A:GLN:HG2	13	0.4
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	7	0.4
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	7	0.4
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	17	0.4
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	17	0.4
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB3	14	0.4
(1,223)	1:13:A:ILE:H	1:10:A:HIS:HA	14	0.39
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	2	0.39
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	2	0.39
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	6	0.38
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	8	0.38
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	20	0.38
(1,229)	1:10:A:HIS:H	1:13:A:ILE:HG12	5	0.37
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	13	0.36
(1,212)	1:8:A:LYS:HZ1	1:7:A:ALA:HA	3	0.36
(1,162)	1:6:A:GLN:HB3	1:9:A:LEU:HG	18	0.36
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	14	0.36
(1,207)	1:7:A:ALA:H	1:8:A:LYS:HZ1	3	0.35
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	16	0.35
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB3	17	0.35
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	18	0.34
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	15	0.34
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	7	0.34
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	16	0.33
(1,204)	1:12:A:GLN:HB3	1:13:A:ILE:HG13	7	0.33
(1,204)	1:12:A:GLN:HB2	1:13:A:ILE:HG13	7	0.33
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	3	0.33
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	14	0.33
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	1	0.32
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	11	0.32
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB2	5	0.32
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	13	0.32
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	9	0.32
(1,4)	1:3:A:ALA:H	1:2:A:HIS:HA	12	0.32
(1,227)	1:2:A:HIS:HB3	1:1:A:ILE:HG12	11	0.31
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	14	0.31
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	11	0.31

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	11	0.31
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG3	12	0.31
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	8	0.3
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	8	0.3
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	7	0.3
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	10	0.3
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	10	0.3
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG3	16	0.3
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	12	0.3
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	16	0.29
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	17	0.29
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE2	10	0.29
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	1	0.29
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	5	0.29
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	2	0.28
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	20	0.28
(1,25)	1:5:A:LEU:H	1:4:A:HIS:HA	15	0.28
(1,19)	1:1:A:ILE:H	1:1:A:ILE:HA	6	0.28
(1,181)	1:6:A:GLN:HG3	1:5:A:LEU:HB3	3	0.27
(1,181)	1:6:A:GLN:HG2	1:5:A:LEU:HB3	3	0.27
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	19	0.27
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	3	0.27
(1,138)	1:13:A:ILE:HA	1:6:A:GLN:HG3	9	0.27
(1,136)	1:7:A:ALA:HA	1:8:A:LYS:HE3	9	0.27
(1,19)	1:1:A:ILE:H	1:1:A:ILE:HA	9	0.27
(1,19)	1:1:A:ILE:H	1:1:A:ILE:HA	10	0.27
(1,19)	1:1:A:ILE:H	1:1:A:ILE:HA	11	0.27
(1,19)	1:1:A:ILE:H	1:1:A:ILE:HA	13	0.27
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	14	0.26
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	1	0.26
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	18	0.26
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	20	0.26
(1,11)	1:2:A:HIS:H	1:1:A:ILE:HA	3	0.26
(1,9)	1:7:A:ALA:H	1:6:A:GLN:HA	19	0.26
(1,4)	1:3:A:ALA:H	1:2:A:HIS:HA	14	0.26
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	6	0.25
(1,227)	1:2:A:HIS:HB3	1:1:A:ILE:HG12	9	0.25
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	8	0.25
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	5	0.25
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB1	6	0.25
(1,119)	1:13:A:ILE:HA	1:3:A:ALA:HB2	13	0.25
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	2	0.25

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	4	0.25
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	6	0.25
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	12	0.25
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	19	0.25
(1,4)	1:3:A:ALA:H	1:2:A:HIS:HA	16	0.25
(1,214)	1:7:A:ALA:H	1:8:A:LYS:HE3	13	0.24
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	6	0.24
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG11	17	0.24
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG12	17	0.24
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG13	17	0.24
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	2	0.24
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	11	0.24
(1,150)	1:8:A:LYS:HA	1:8:A:LYS:HE3	17	0.24
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	11	0.24
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	10	0.24
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	7	0.24
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	9	0.24
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	10	0.24
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	11	0.24
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	3	0.24
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	18	0.24
(1,9)	1:7:A:ALA:H	1:6:A:GLN:HA	20	0.24
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	20	0.23
(1,225)	1:11:A:VAL:HB	1:13:A:ILE:HB	14	0.23
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	16	0.23
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB1	15	0.23
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB2	15	0.23
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB3	15	0.23
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	5	0.22
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	16	0.22
(1,224)	1:11:A:VAL:HA	1:13:A:ILE:HB	19	0.22
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	16	0.22
(1,159)	1:9:A:LEU:H	1:8:A:LYS:HE2	3	0.22
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	2	0.22
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	4	0.22
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	8	0.22
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	14	0.22
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	18	0.22
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	5	0.22
(1,232)	1:11:A:VAL:HB	1:13:A:ILE:HG12	16	0.21
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	12	0.21
(1,224)	1:11:A:VAL:HA	1:13:A:ILE:HB	4	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG11	15	0.21
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG12	15	0.21
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG13	15	0.21
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	3	0.21
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	10	0.21
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	3	0.21
(1,49)	1:8:A:LYS:H	1:8:A:LYS:HD3	18	0.21
(1,49)	1:8:A:LYS:H	1:8:A:LYS:HD2	18	0.21
(1,25)	1:5:A:LEU:H	1:4:A:HIS:HA	3	0.21
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	13	0.2
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	15	0.2
(1,168)	1:4:A:HIS:HD2	1:5:A:LEU:HB3	18	0.2
(1,163)	1:6:A:GLN:HG2	1:9:A:LEU:HG	17	0.2
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB2	2	0.2
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB2	9	0.2
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	17	0.2
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	13	0.2
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	16	0.2
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	18	0.19
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	3	0.19
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	9	0.19
(1,227)	1:2:A:HIS:HB3	1:1:A:ILE:HG12	2	0.19
(1,204)	1:12:A:GLN:HB3	1:13:A:ILE:HG13	13	0.19
(1,204)	1:12:A:GLN:HB2	1:13:A:ILE:HG13	13	0.19
(1,146)	1:2:A:HIS:HD2	1:3:A:ALA:HB1	11	0.19
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG3	16	0.19
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	15	0.19
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	16	0.19
(1,82)	1:12:A:GLN:H	1:12:A:GLN:HA	17	0.19
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	1	0.19
(1,65)	1:10:A:HIS:HA	1:11:A:VAL:HA	19	0.19
(1,11)	1:2:A:HIS:H	1:1:A:ILE:HA	6	0.19
(1,227)	1:2:A:HIS:HB3	1:1:A:ILE:HG12	17	0.18
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	1	0.18
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	14	0.18
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	1	0.18
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG3	4	0.18
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	6	0.18
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	8	0.18
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	11	0.18
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	6	0.17
(1,231)	1:11:A:VAL:HA	1:13:A:ILE:HG12	19	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,222)	1:4:A:HIS:HB2	1:6:A:GLN:HG2	18	0.17
(1,213)	1:9:A:LEU:H	1:8:A:LYS:HZ1	12	0.17
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	12	0.17
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	5	0.17
(1,164)	1:10:A:HIS:HA	1:11:A:VAL:HB	10	0.17
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	2	0.17
(1,65)	1:10:A:HIS:HA	1:11:A:VAL:HA	4	0.17
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	2	0.17
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	4	0.17
(1,232)	1:11:A:VAL:HB	1:13:A:ILE:HG12	17	0.16
(1,225)	1:11:A:VAL:HB	1:13:A:ILE:HB	18	0.16
(1,212)	1:8:A:LYS:HZ2	1:7:A:ALA:HA	10	0.16
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	17	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB3	15	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB2	15	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB3	17	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB2	17	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB3	18	0.16
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB2	18	0.16
(1,192)	1:12:A:GLN:HB3	1:13:A:ILE:HB	18	0.16
(1,192)	1:12:A:GLN:HB2	1:13:A:ILE:HB	18	0.16
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	9	0.16
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG3	12	0.16
(1,144)	1:4:A:HIS:HA	1:6:A:GLN:HG2	13	0.16
(1,65)	1:10:A:HIS:HA	1:11:A:VAL:HA	7	0.16
(1,65)	1:10:A:HIS:HA	1:11:A:VAL:HA	20	0.16
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	6	0.16
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	18	0.16
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB1	3	0.16
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB2	3	0.16
(1,14)	1:4:A:HIS:HA	1:3:A:ALA:HB3	3	0.16
(1,224)	1:11:A:VAL:HA	1:13:A:ILE:HB	10	0.15
(1,192)	1:12:A:GLN:HB3	1:13:A:ILE:HB	12	0.15
(1,192)	1:12:A:GLN:HB2	1:13:A:ILE:HB	12	0.15
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG11	16	0.15
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG12	16	0.15
(1,188)	1:13:A:ILE:H	1:11:A:VAL:HG13	16	0.15
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	15	0.15
(1,73)	1:13:A:ILE:H	1:12:A:GLN:HA	11	0.15
(1,49)	1:8:A:LYS:H	1:8:A:LYS:HD3	11	0.15
(1,49)	1:8:A:LYS:H	1:8:A:LYS:HD2	11	0.15
(1,11)	1:2:A:HIS:H	1:1:A:ILE:HA	12	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	16	0.14
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	20	0.14
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	9	0.14
(1,210)	1:1:A:ILE:H	1:5:A:LEU:H	10	0.14
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	10	0.14
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	10	0.14
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	18	0.14
(1,4)	1:3:A:ALA:H	1:2:A:HIS:HA	6	0.14
(1,4)	1:3:A:ALA:H	1:2:A:HIS:HA	13	0.14
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	13	0.13
(1,232)	1:11:A:VAL:HB	1:13:A:ILE:HG12	15	0.13
(1,231)	1:11:A:VAL:HA	1:13:A:ILE:HG12	4	0.13
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	15	0.13
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	17	0.13
(1,212)	1:8:A:LYS:HZ3	1:7:A:ALA:HA	13	0.13
(1,192)	1:12:A:GLN:HB3	1:13:A:ILE:HB	9	0.13
(1,192)	1:12:A:GLN:HB2	1:13:A:ILE:HB	9	0.13
(1,163)	1:6:A:GLN:HG2	1:5:A:LEU:HG	3	0.13
(1,161)	1:6:A:GLN:HA	1:5:A:LEU:HB3	7	0.13
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	8	0.13
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	9	0.13
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	16	0.13
(1,12)	1:2:A:HIS:H	1:1:A:ILE:HB	1	0.13
(1,12)	1:2:A:HIS:H	1:1:A:ILE:HB	5	0.13
(1,12)	1:2:A:HIS:H	1:1:A:ILE:HB	15	0.13
(1,247)	1:3:A:ALA:HA	1:0:A:ACE:H1	13	0.12
(1,247)	1:3:A:ALA:HA	1:0:A:ACE:H2	13	0.12
(1,247)	1:3:A:ALA:HA	1:0:A:ACE:H3	13	0.12
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	10	0.12
(1,223)	1:13:A:ILE:H	1:2:A:HIS:HA	19	0.12
(1,201)	1:12:A:GLN:H	1:13:A:ILE:HG13	17	0.12
(1,145)	1:4:A:HIS:HD2	1:5:A:LEU:HA	7	0.12
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	4	0.12
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	19	0.12
(1,65)	1:10:A:HIS:HA	1:11:A:VAL:HA	6	0.12
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	12	0.12
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	20	0.12
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	16	0.12
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	17	0.12
(1,11)	1:2:A:HIS:H	1:1:A:ILE:HA	13	0.12
(1,241)	1:6:A:GLN:HB2	1:5:A:LEU:HB3	15	0.11
(1,235)	1:13:A:ILE:H	1:5:A:LEU:H	12	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,232)	1:11:A:VAL:HB	1:13:A:ILE:HG12	11	0.11
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	19	0.11
(1,201)	1:12:A:GLN:H	1:13:A:ILE:HG13	15	0.11
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	10	0.11
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	17	0.11
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	20	0.11
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	2	0.11
(1,38)	1:10:A:HIS:H	1:9:A:LEU:HA	11	0.11
(1,37)	1:10:A:HIS:HA	1:9:A:LEU:HG	13	0.11
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	12	0.11
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	19	0.11
(1,12)	1:2:A:HIS:H	1:1:A:ILE:HB	20	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	1	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	2	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	3	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	4	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	5	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	7	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	9	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	10	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	11	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	17	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	18	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	19	0.11
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	20	0.11
(1,229)	1:7:A:ALA:H	1:13:A:ILE:HG12	4	0.1
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB3	9	0.1
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB2	9	0.1
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB3	20	0.1
(1,194)	1:12:A:GLN:H	1:10:A:HIS:HB2	20	0.1
(1,116)	1:5:A:LEU:H	1:4:A:HIS:HD2	15	0.1
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	14	0.1
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	15	0.1
(1,71)	1:13:A:ILE:H	1:13:A:ILE:HA	16	0.1
(1,15)	1:4:A:HIS:H	1:3:A:ALA:HA	20	0.1
(1,10)	1:2:A:HIS:H	1:2:A:HIS:HA	8	0.1

10 Dihedral-angle violation analysis ⓘ

No dihedral-angle restraints found