



Full wwPDB NMR Structure Validation Report ⓘ

Jun 6, 2023 – 02:14 pm BST

PDB ID : 5MQX
BMRB ID : 26753
Title : NMR solution structure of macro domain from Venezuelan equine encephalitis virus(VEEV) in complex with ADP-ribose
Authors : Makrynitsa, G.I.; Ntonti, D.; Marousis, K.D.; Matsoukas, M.T.; Papageorgiou, N.; Coutard, B.; Bentrop, D.; Spyroulias, G.A.
Deposited on : 2016-12-21

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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 : 4.02b-467
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
BMRB Restraints Analysis : v1.2
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.33

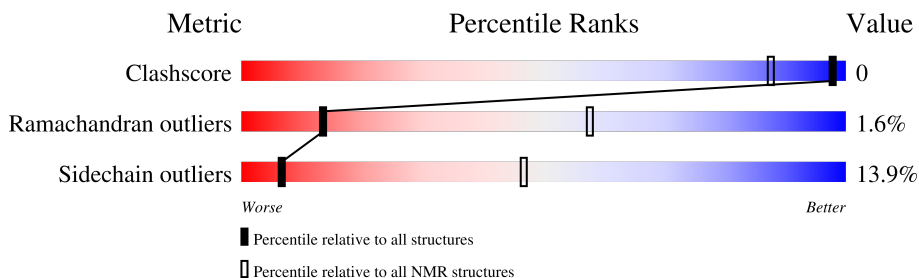
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLUTION NMR


The overall completeness of chemical shifts assignment is 88%.

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	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

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	166	

2 Ensemble composition and analysis

This entry contains 21 models. Model 1 is the overall representative, medoid model (most similar to other models).

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:3-A:160 (158)	0.89	1

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	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 16, 19, 21
2	11, 12, 13, 14, 15, 17, 18, 20

3 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 2500 atoms, of which 1250 are hydrogens and 0 are deuteriums.

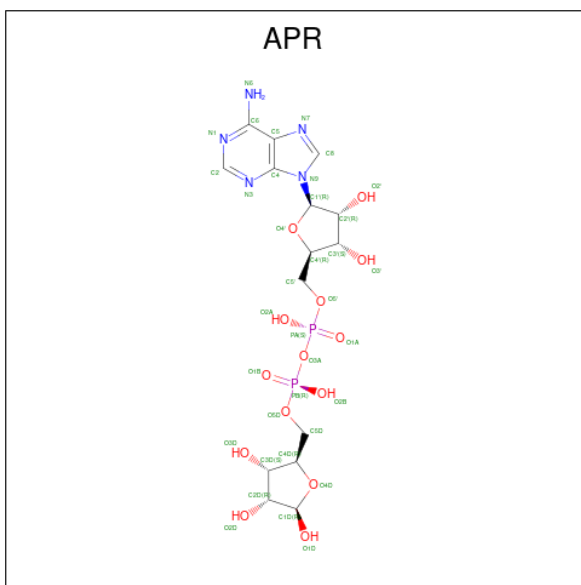
- Molecule 1 is a protein called Non-structural protein3.

Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		S
1	A	160	2443	764	1229	214	233	3	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	161	HIS	-	expression tag	UNP P36328
A	162	HIS	-	expression tag	UNP P36328
A	163	HIS	-	expression tag	UNP P36328
A	164	HIS	-	expression tag	UNP P36328
A	165	HIS	-	expression tag	UNP P36328
A	166	HIS	-	expression tag	UNP P36328

- Molecule 2 is ADENOSINE-5-DIPHOSPHORIBOSE (three-letter code: APR) (formula: $C_{15}H_{23}N_5O_{14}P_2$).

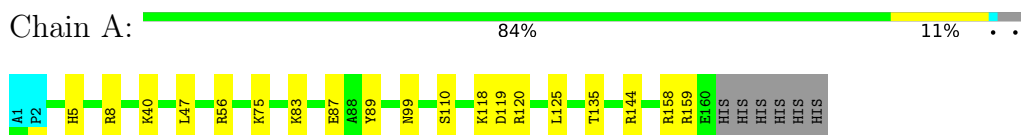


4 Residue-property plots [i](#)

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: Non-structural protein3

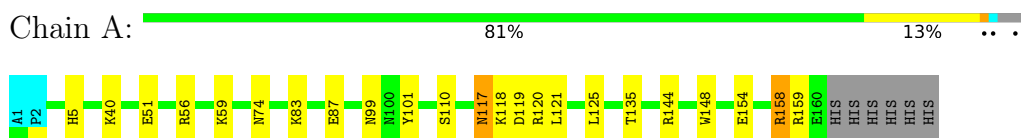


4.2 Scores per residue for each member of the ensemble

Colouring as in section [4.1](#) above.

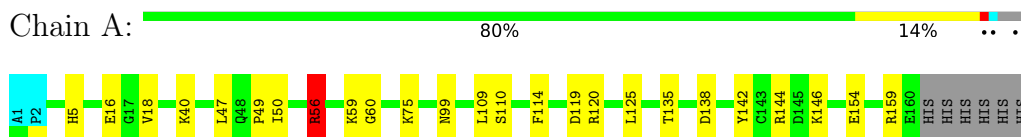
4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: Non-structural protein3



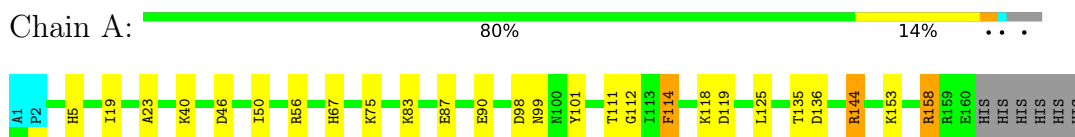
4.2.2 Score per residue for model 2

- Molecule 1: Non-structural protein3



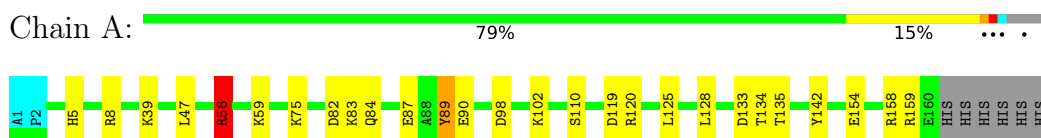
4.2.3 Score per residue for model 3

- Molecule 1: Non-structural protein3



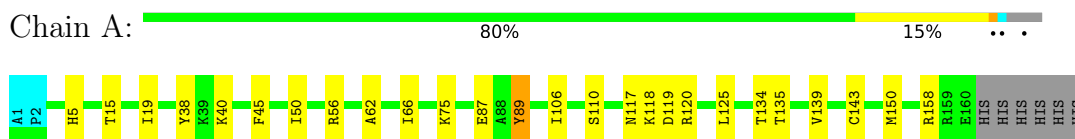
4.2.4 Score per residue for model 4

- Molecule 1: Non-structural protein3



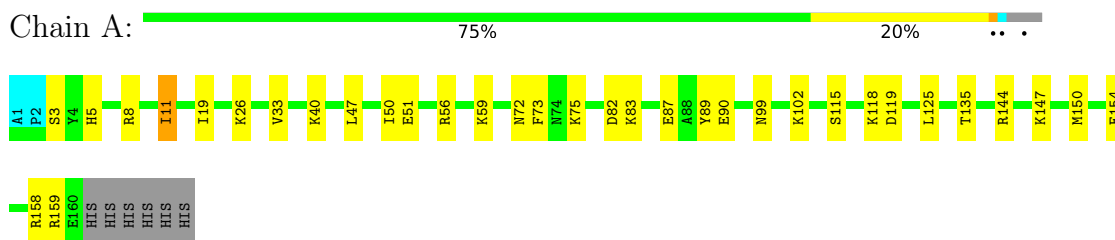
4.2.5 Score per residue for model 5

- Molecule 1: Non-structural protein3



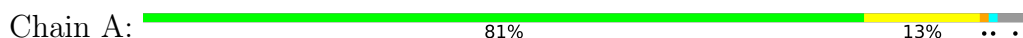
4.2.6 Score per residue for model 6

- Molecule 1: Non-structural protein3



4.2.7 Score per residue for model 7

- Molecule 1: Non-structural protein3





4.2.8 Score per residue for model 8

- Molecule 1: Non-structural protein3

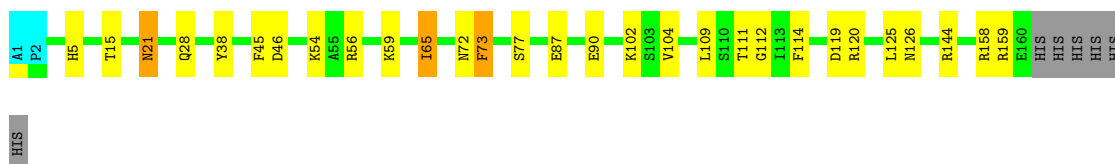
Chain A: 77% 17%



4.2.9 Score per residue for model 9

- Molecule 1: Non-structural protein3

Chain A: 78% 16%



4.2.10 Score per residue for model 10

- Molecule 1: Non-structural protein3

Chain A: 80% 14%



4.2.11 Score per residue for model 11

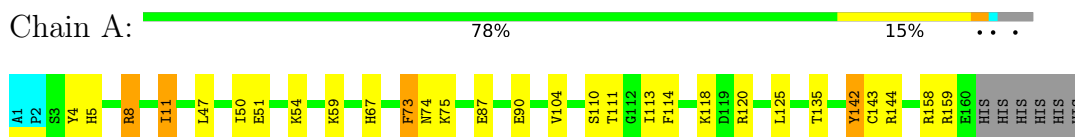
- Molecule 1: Non-structural protein3

Chain A: 80% 14%



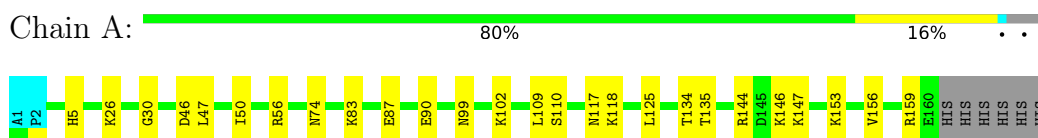
4.2.12 Score per residue for model 12

- Molecule 1: Non-structural protein3



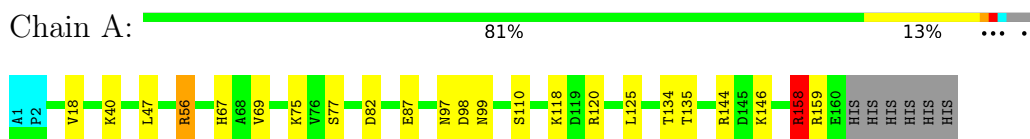
4.2.13 Score per residue for model 13

- Molecule 1: Non-structural protein3



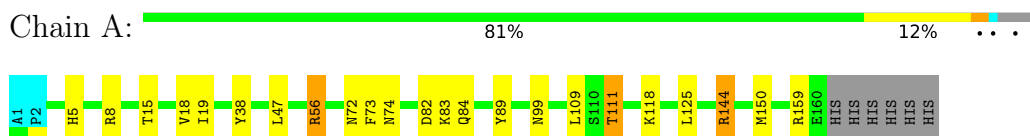
4.2.14 Score per residue for model 14

- Molecule 1: Non-structural protein3



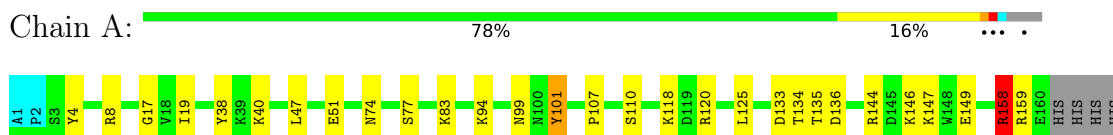
4.2.15 Score per residue for model 15

- Molecule 1: Non-structural protein3



4.2.16 Score per residue for model 16


- Molecule 1: Non-structural protein3



HIS
HIS


4.2.17 Score per residue for model 17

- Molecule 1: Non-structural protein3

Chain A:  82% 12% ..


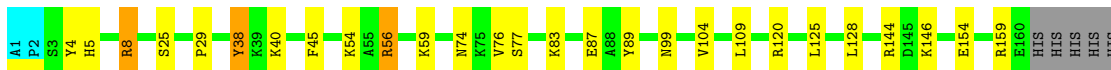
4.2.18 Score per residue for model 18

- Molecule 1: Non-structural protein3

Chain A:  84% 11% ..

4.2.19 Score per residue for model 19


- Molecule 1: Non-structural protein3

Chain A:  79% 14% ..

HIS

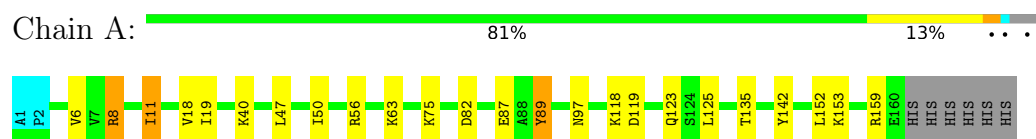
4.2.20 Score per residue for model 20

- Molecule 1: Non-structural protein3

Chain A:  80% 13% ..

4.2.21 Score per residue for model 21

- Molecule 1: Non-structural protein3



5 Refinement protocol and experimental data overview

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

Of the 112 calculated structures, 21 were deposited, based on the following criterion: *target function*.

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

Software name	Classification	Version
DYANA	structure calculation	
Amber	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	1
Total number of shifts	1860
Number of shifts mapped to atoms	1860
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	88%

6 Model quality i

6.1 Standard geometry i

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

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 (average) 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	0.66±0.01	0±0/1221 (0.0± 0.0%)	1.17±0.10	5±2/1650 (0.3± 0.1%)
All	All	0.66	0/25641 (0.0%)	1.17	108/34650 (0.3%)

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	Planarity
1	A	0.0±0.0	1.8±1.6
All	All	0	37

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(°)	Ideal(°)	Models	
								Worst	Total
1	A	74	ASN	OD1-CG-ND2	-20.75	74.17	121.90	1	1
1	A	117	ASN	OD1-CG-ND2	-20.00	75.89	121.90	1	1
1	A	117	ASN	CB-CG-ND2	18.87	161.99	116.70	1	1
1	A	74	ASN	CB-CG-ND2	18.81	161.85	116.70	1	1
1	A	117	ASN	CB-CG-OD1	-17.75	86.10	121.60	1	1
1	A	74	ASN	CB-CG-OD1	-16.82	87.95	121.60	1	1
1	A	56	ARG	NE-CZ-NH2	14.04	127.32	120.30	2	16
1	A	158	ARG	NE-CZ-NH2	9.52	125.06	120.30	18	14
1	A	120	ARG	NE-CZ-NH2	9.46	125.03	120.30	8	13
1	A	159	ARG	NE-CZ-NH2	8.53	124.56	120.30	12	17
1	A	144	ARG	NE-CZ-NH2	8.46	124.53	120.30	17	12
1	A	56	ARG	CD-NE-CZ	7.39	133.95	123.60	2	1

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)	Models	
								Worst	Total
1	A	142	TYR	CB-CG-CD1	-6.87	116.88	121.00	7	5
1	A	8	ARG	NE-CZ-NH1	-6.83	116.88	120.30	19	1
1	A	89	TYR	CB-CG-CD1	-6.49	117.10	121.00	5	2
1	A	4	TYR	CB-CG-CD1	-5.98	117.41	121.00	16	2
1	A	8	ARG	NE-CZ-NH2	5.89	123.25	120.30	19	9
1	A	56	ARG	NE-CZ-NH1	-5.82	117.39	120.30	2	2
1	A	8	ARG	CD-NE-CZ	5.77	131.67	123.60	7	2
1	A	144	ARG	NE-CZ-NH1	5.39	123.00	120.30	13	2
1	A	101	TYR	CB-CG-CD2	-5.37	117.78	121.00	3	1
1	A	38	TYR	CB-CG-CD2	-5.26	117.84	121.00	19	1
1	A	160	GLU	OE1-CD-OE2	-5.18	117.08	123.30	11	1
1	A	38	TYR	CB-CG-CD1	-5.01	117.99	121.00	5	1

There are no chirality outliers.

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

Mol	Chain	Res	Type	Group	Models (Total)
1	A	89	TYR	Sidechain	6
1	A	101	TYR	Sidechain	4
1	A	159	ARG	Sidechain,Peptide	4
1	A	144	ARG	Sidechain	3
1	A	158	ARG	Sidechain	2
1	A	69	VAL	Peptide	2
1	A	17	GLY	Peptide	2
1	A	8	ARG	Sidechain	2
1	A	60	GLY	Peptide	1
1	A	56	ARG	Sidechain	1
1	A	142	TYR	Sidechain	1
1	A	70	GLY	Peptide	1
1	A	114	PHE	Sidechain	1
1	A	107	PRO	Peptide	1
1	A	4	TYR	Sidechain	1
1	A	102	LYS	Peptide	1
1	A	73	PHE	Sidechain	1
1	A	38	TYR	Sidechain	1
1	A	110	SER	Peptide	1
1	A	119	ASP	Peptide	1

6.2 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 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	1202	1215	1215	1±1
2	A	36	21	21	0±0
All	All	25998	25956	25956	20

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 0.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:106:ILE:HD12	1:A:139:VAL:HG13	0.51	1.82	5	1
1:A:33:VAL:HG11	2:A:201:APR:O2A	0.48	2.08	6	1
1:A:23:ALA:HB2	1:A:67:HIS:CE1	0.48	2.43	3	1
1:A:158:ARG:CZ	1:A:158:ARG:HA	0.46	2.40	14	1
1:A:57:LEU:CD2	1:A:59:LYS:HE2	0.46	2.41	10	1
1:A:51:GLU:H	1:A:51:GLU:CD	0.46	2.14	1	2
1:A:21:ASN:HD21	1:A:65:ILE:HG22	0.44	1.70	9	1
1:A:56:ARG:HH21	1:A:56:ARG:HG2	0.44	1.72	2	1
1:A:38:TYR:CE1	1:A:45:PHE:CZ	0.44	3.06	8	1
1:A:89:TYR:CD1	1:A:128:LEU:HD13	0.42	2.49	19	1
1:A:6:VAL:HG13	1:A:152:LEU:HD12	0.41	1.90	21	1
1:A:49:PRO:C	1:A:50:ILE:HD12	0.41	2.36	2	1
1:A:75:LYS:HE2	1:A:75:LYS:HA	0.41	1.90	6	1
1:A:19:ILE:HD13	1:A:41:PHE:CE2	0.41	2.50	7	1
1:A:11:ILE:CD1	1:A:19:ILE:HG23	0.41	2.46	21	2
1:A:121:LEU:HD11	1:A:148:TRP:CD1	0.40	2.50	1	1
1:A:11:ILE:HG12	1:A:142:TYR:CD1	0.40	2.52	12	1
1:A:99:ASN:ND2	1:A:101:TYR:CZ	0.40	2.90	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	157/166 (95%)	137±2 (88±1%)	17±2 (11±2%)	2±1 (2±1%)	13	57
All	All	3297/3486 (95%)	2885 (88%)	360 (11%)	52 (2%)	13	57

All 16 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	47	LEU	15
1	A	110	SER	11
1	A	111	THR	5
1	A	72	ASN	3
1	A	73	PHE	3
1	A	30	GLY	3
1	A	112	GLY	2
1	A	115	SER	2
1	A	114	PHE	1
1	A	62	ALA	1
1	A	117	ASN	1
1	A	146	LYS	1
1	A	46	ASP	1
1	A	107	PRO	1
1	A	29	PRO	1
1	A	45	PHE	1

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	127/134 (95%)	109±3 (86±2%)	18±3 (14±2%)	7	47
All	All	2667/2814 (95%)	2297 (86%)	370 (14%)	7	47

All 76 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	125	LEU	20

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Mol	Chain	Res	Type	Models (Total)
1	A	5	HIS	17
1	A	118	LYS	16
1	A	135	THR	15
1	A	87	GLU	14
1	A	40	LYS	13
1	A	83	LYS	12
1	A	99	ASN	12
1	A	119	ASP	12
1	A	56	ARG	10
1	A	75	LYS	10
1	A	109	LEU	9
1	A	59	LYS	8
1	A	82	ASP	8
1	A	74	ASN	8
1	A	50	ILE	7
1	A	90	GLU	7
1	A	8	ARG	7
1	A	134	THR	7
1	A	54	LYS	7
1	A	117	ASN	6
1	A	154	GLU	6
1	A	153	LYS	6
1	A	147	LYS	6
1	A	146	LYS	5
1	A	19	ILE	5
1	A	102	LYS	5
1	A	150	MET	5
1	A	26	LYS	5
1	A	18	VAL	4
1	A	136	ASP	4
1	A	144	ARG	4
1	A	77	SER	4
1	A	113	ILE	4
1	A	114	PHE	3
1	A	46	ASP	3
1	A	98	ASP	3
1	A	158	ARG	3
1	A	84	GLN	3
1	A	89	TYR	3
1	A	133	ASP	3
1	A	15	THR	3
1	A	45	PHE	3

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Mol	Chain	Res	Type	Models (Total)
1	A	143	CYS	3
1	A	11	ILE	3
1	A	73	PHE	3
1	A	38	TYR	3
1	A	72	ASN	3
1	A	104	VAL	3
1	A	67	HIS	3
1	A	3	SER	2
1	A	51	GLU	2
1	A	123	GLN	2
1	A	28	GLN	2
1	A	63	LYS	2
1	A	94	LYS	2
1	A	97	ASN	2
1	A	76	VAL	2
1	A	16	GLU	1
1	A	138	ASP	1
1	A	39	LYS	1
1	A	128	LEU	1
1	A	66	ILE	1
1	A	145	ASP	1
1	A	21	ASN	1
1	A	65	ILE	1
1	A	126	ASN	1
1	A	47	LEU	1
1	A	100	ASN	1
1	A	4	TYR	1
1	A	156	VAL	1
1	A	111	THR	1
1	A	149	GLU	1
1	A	142	TYR	1
1	A	25	SER	1
1	A	58	VAL	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 monosaccharides in this entry.

6.6 Ligand geometry [i](#)

1 ligand is 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
2	APR	A	201	-	34,39,39	1.07±0.05	2±1 (5±2%)

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
2	APR	A	201	-	40,60,60	1.51±0.13	5±1 (11±3%)

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
2	APR	A	201	-	-	0±0,18,54,54	0±0,4,4,4

All unique bond 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(Å)	Ideal(Å)	Models	
								Worst	Total
2	A	201	APR	C1D-C2D	3.81	1.57	1.52	2	19
2	A	201	APR	O4'-C1'	2.68	1.44	1.41	9	13
2	A	201	APR	C2-N3	2.41	1.36	1.32	19	10

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

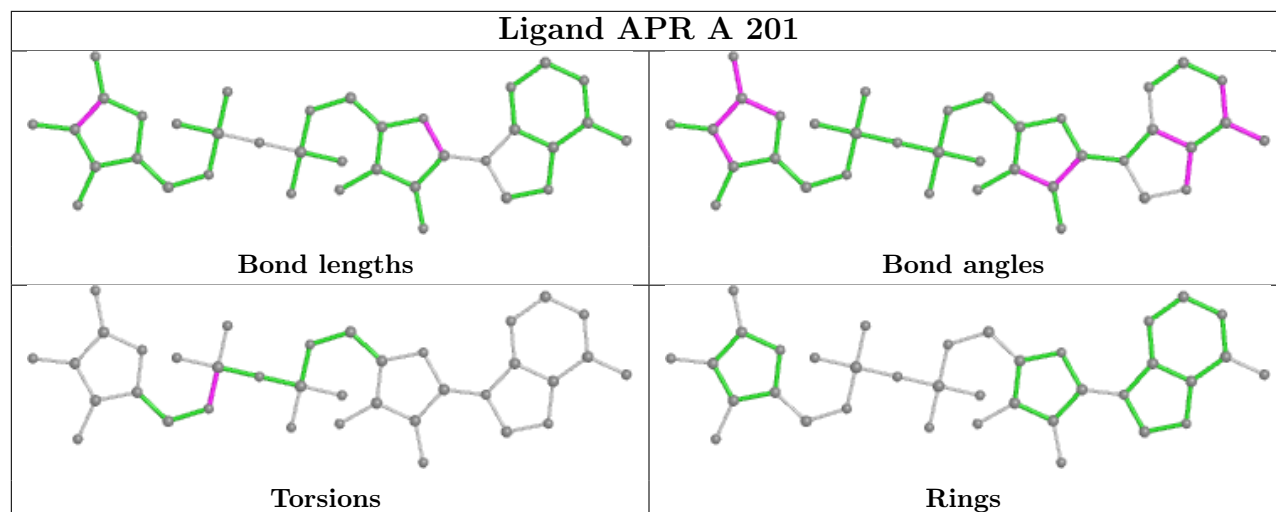
Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)	Models	
								Worst	Total
2	A	201	APR	O1D-C1D-O4D	7.24	101.86	111.13	9	18
2	A	201	APR	C4-C5-N7	5.29	114.92	109.40	12	21
2	A	201	APR	O4'-C1'-C2'	3.57	101.71	106.93	16	7
2	A	201	APR	O4D-C1D-C2D	2.94	108.08	104.46	15	6
2	A	201	APR	PB-O3A-PA	2.92	122.80	132.83	12	4
2	A	201	APR	C3'-C2'-C1'	2.87	105.31	100.98	13	16
2	A	201	APR	C1D-C2D-C3D	2.79	105.79	102.30	11	6
2	A	201	APR	C2-N1-C6	2.40	114.64	118.75	19	5
2	A	201	APR	O4D-C4D-C3D	2.37	100.43	105.11	6	2
2	A	201	APR	O5D-C5D-C4D	2.29	116.88	108.99	13	1
2	A	201	APR	N6-C6-N1	2.21	113.99	118.57	17	6
2	A	201	APR	C1'-N9-C4	2.18	122.81	126.64	4	1
2	A	201	APR	O5'-C5'-C4'	2.12	116.28	108.99	6	1
2	A	201	APR	C5-C6-N6	2.05	123.47	120.35	17	1

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

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.



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 [i](#)

The completeness of assignment taking into account all chemical shift lists is 88% for the well-defined parts and 88% 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 [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	1860
Number of shifts mapped to atoms	1860
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	5

7.1.2 Chemical shift referencing [i](#)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction \pm precision, ppm	Suggested action
$^{13}\text{C}_\alpha$	158	-0.06 ± 0.08	None needed (< 0.5 ppm)
$^{13}\text{C}_\beta$	145	0.13 ± 0.08	None needed (< 0.5 ppm)
$^{13}\text{C}'$	147	0.16 ± 0.15	None needed (< 0.5 ppm)
^{15}N	149	-0.18 ± 0.30	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments [i](#)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 88%, i.e. 1839 atoms were assigned a chemical shift out of a possible 2096. 0 out of 25 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	766/793 (97%)	317/324 (98%)	301/316 (95%)	148/153 (97%)
Sidechain	1031/1178 (88%)	705/767 (92%)	323/366 (88%)	3/45 (7%)

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	Total	¹ H	¹³ C	¹⁵ N
Aromatic	42/125 (34%)	22/62 (35%)	19/58 (33%)	1/5 (20%)
Overall	1839/2096 (88%)	1044/1153 (91%)	643/740 (87%)	152/203 (75%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 88%, i.e. 1859 atoms were assigned a chemical shift out of a possible 2117. 0 out of 25 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	¹ H	¹³ C	¹⁵ N
Backbone	773/801 (97%)	319/327 (98%)	305/320 (95%)	149/154 (97%)
Sidechain	1044/1191 (88%)	714/776 (92%)	327/370 (88%)	3/45 (7%)
Aromatic	42/125 (34%)	22/62 (35%)	19/58 (33%)	1/5 (20%)
Overall	1859/2117 (88%)	1055/1165 (91%)	651/748 (87%)	153/204 (75%)

7.1.4 Statistically unusual chemical shifts [i](#)

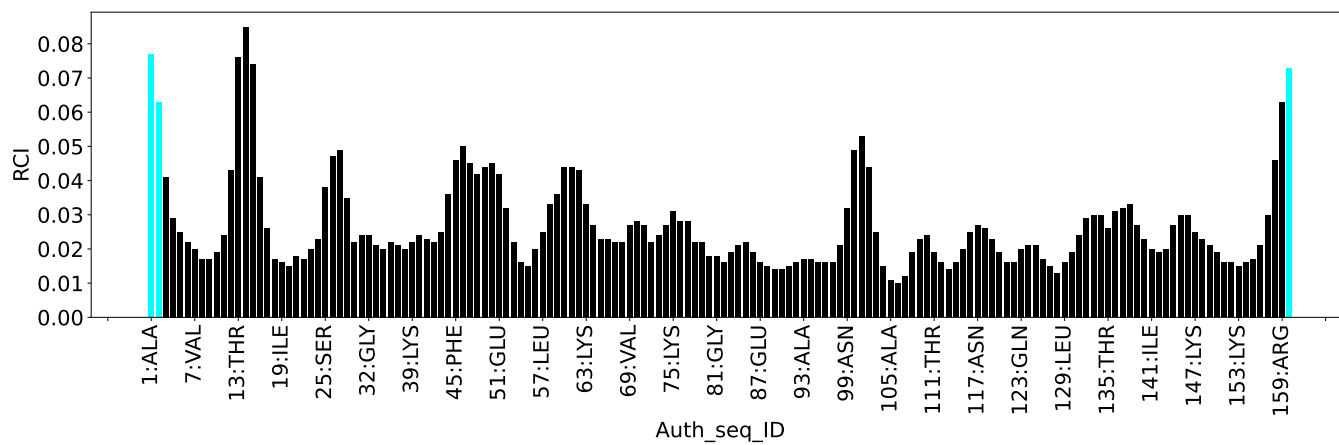
The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

List Id	Chain	Res	Type	Atom	Shift, ppm	Expected range, ppm	Z-score
1	A	41	PHE	CE1	120.81	124.17 – 137.29	-7.6
1	A	72	ASN	HB2	0.89	1.27 – 4.34	-6.2
1	A	72	ASN	HB3	0.89	1.12 – 4.38	-5.7
1	A	64	HIS	HE1	4.98	5.13 – 10.76	-5.3
1	A	7	VAL	HB	0.37	0.43 – 3.54	-5.2

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	1640
Intra-residue ($ i-j =0$)	394
Sequential ($ i-j =1$)	644
Medium range ($ i-j >1$ and $ i-j <5$)	274
Long range ($ i-j \geq 5$)	328
Inter-chain	0
Hydrogen bond restraints	0
Disulfide bond restraints	0
Total dihedral-angle restraints	0
Number of unmapped restraints	1
Number of restraints per residue	9.9
Number of long range restraints per residue ¹	2.0

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)	25.6	0.2
0.2-0.5 (Medium)	9.0	0.49
>0.5 (Large)	0.0	0.54

8.2.2 Average number of dihedral-angle violations per model

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

9 Distance violation analysis [\(i\)](#)

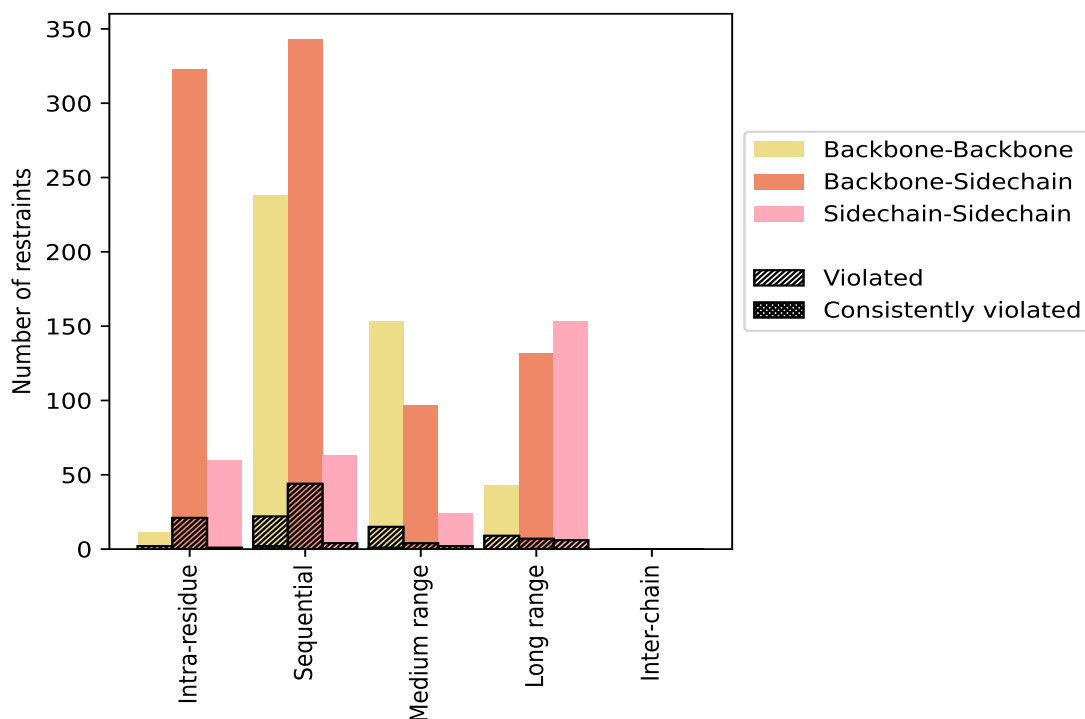
9.1 Summary of distance violations [\(i\)](#)

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 ($i-j =0$)	394	24.0	24	6.1	1.5	0	0.0	0.0
Backbone-Backbone	11	0.7	2	18.2	0.1	0	0.0	0.0
Backbone-Sidechain	323	19.7	21	6.5	1.3	0	0.0	0.0
Sidechain-Sidechain	60	3.7	1	1.7	0.1	0	0.0	0.0
Sequential ($i-j =1$)	644	39.3	70	10.9	4.3	2	0.3	0.1
Backbone-Backbone	238	14.5	22	9.2	1.3	2	0.8	0.1
Backbone-Sidechain	343	20.9	44	12.8	2.7	0	0.0	0.0
Sidechain-Sidechain	63	3.8	4	6.3	0.2	0	0.0	0.0
Medium range ($i-j >1$ & $i-j <5$)	274	16.7	21	7.7	1.3	1	0.4	0.1
Backbone-Backbone	153	9.3	15	9.8	0.9	1	0.7	0.1
Backbone-Sidechain	97	5.9	4	4.1	0.2	0	0.0	0.0
Sidechain-Sidechain	24	1.5	2	8.3	0.1	0	0.0	0.0
Long range ($i-j \geq 5$)	328	20.0	22	6.7	1.3	0	0.0	0.0
Backbone-Backbone	43	2.6	9	20.9	0.5	0	0.0	0.0
Backbone-Sidechain	132	8.0	7	5.3	0.4	0	0.0	0.0
Sidechain-Sidechain	153	9.3	6	3.9	0.4	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	1640	100.0	137	8.4	8.4	3	0.2	0.2
Backbone-Backbone	445	27.1	48	10.8	2.9	3	0.7	0.2
Backbone-Sidechain	895	54.6	76	8.5	4.6	0	0.0	0.0
Sidechain-Sidechain	300	18.3	13	4.3	0.8	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 disulfid 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	23	6	3	0	34	0.18	0.39	0.07	0.15
2	7	18	6	3	0	34	0.17	0.38	0.07	0.16
3	5	20	9	4	0	38	0.18	0.4	0.08	0.15
4	6	19	4	2	0	31	0.17	0.34	0.06	0.15
5	5	16	7	5	0	33	0.17	0.39	0.07	0.14
6	4	15	6	7	0	32	0.16	0.37	0.06	0.13
7	3	17	4	4	0	28	0.18	0.37	0.07	0.15
8	2	19	6	3	0	30	0.19	0.44	0.09	0.16
9	6	22	8	3	0	39	0.18	0.42	0.07	0.17
10	5	17	7	4	0	33	0.19	0.47	0.08	0.16
11	4	22	4	4	0	34	0.2	0.46	0.08	0.18

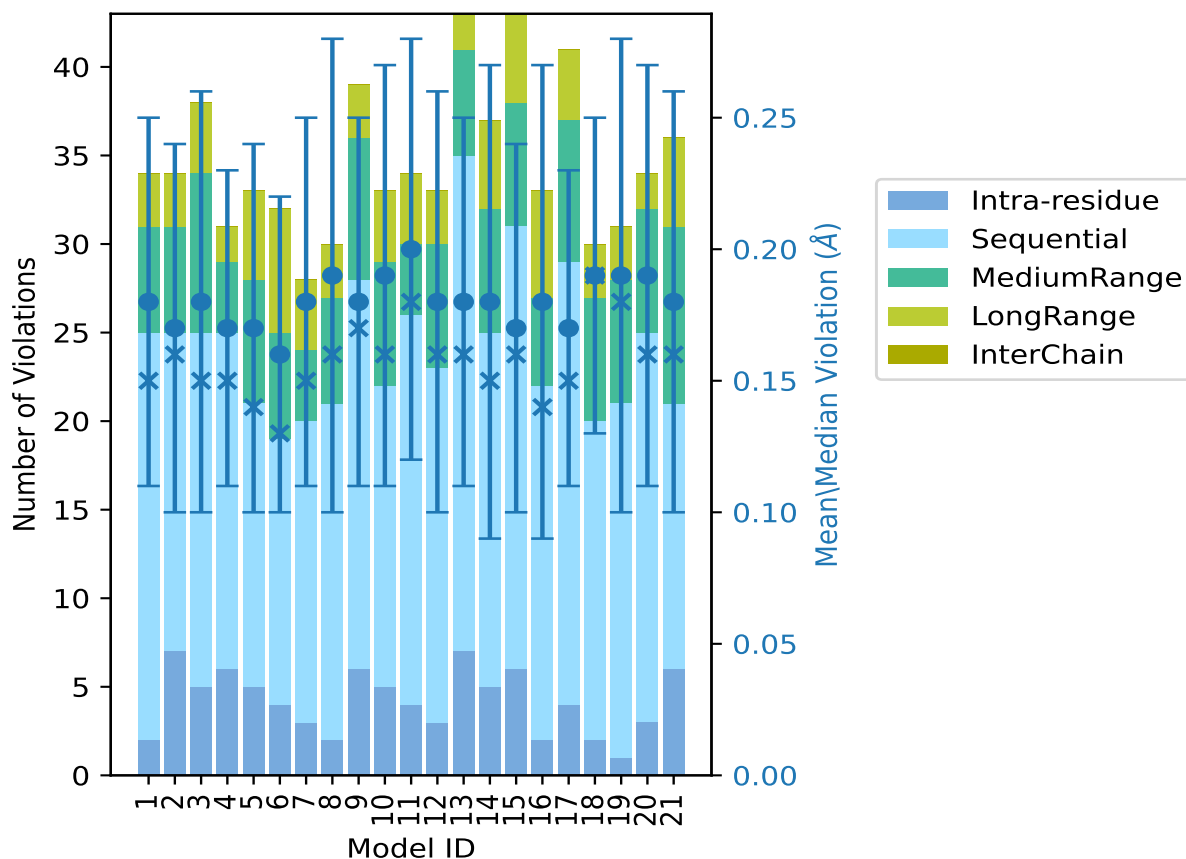
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Model ID	Number of violations					Total	Mean (Å)	Max (Å)	SD ⁶ (Å)	Median (Å)
	IR ¹	SQ ²	MR ³	LR ⁴	IC ⁵					
12	3	20	7	3	0	33	0.18	0.43	0.08	0.16
13	7	28	6	2	0	43	0.18	0.45	0.07	0.16
14	5	20	7	5	0	37	0.18	0.47	0.09	0.15
15	6	25	7	5	0	43	0.17	0.37	0.07	0.16
16	2	20	5	6	0	33	0.18	0.54	0.09	0.14
17	4	25	8	4	0	41	0.17	0.41	0.06	0.15
18	2	18	7	3	0	30	0.19	0.34	0.06	0.19
19	1	20	7	3	0	31	0.19	0.46	0.09	0.18
20	3	22	7	2	0	34	0.19	0.43	0.08	0.16
21	6	15	10	5	0	36	0.18	0.49	0.08	0.16

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 [\(i\)](#)



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

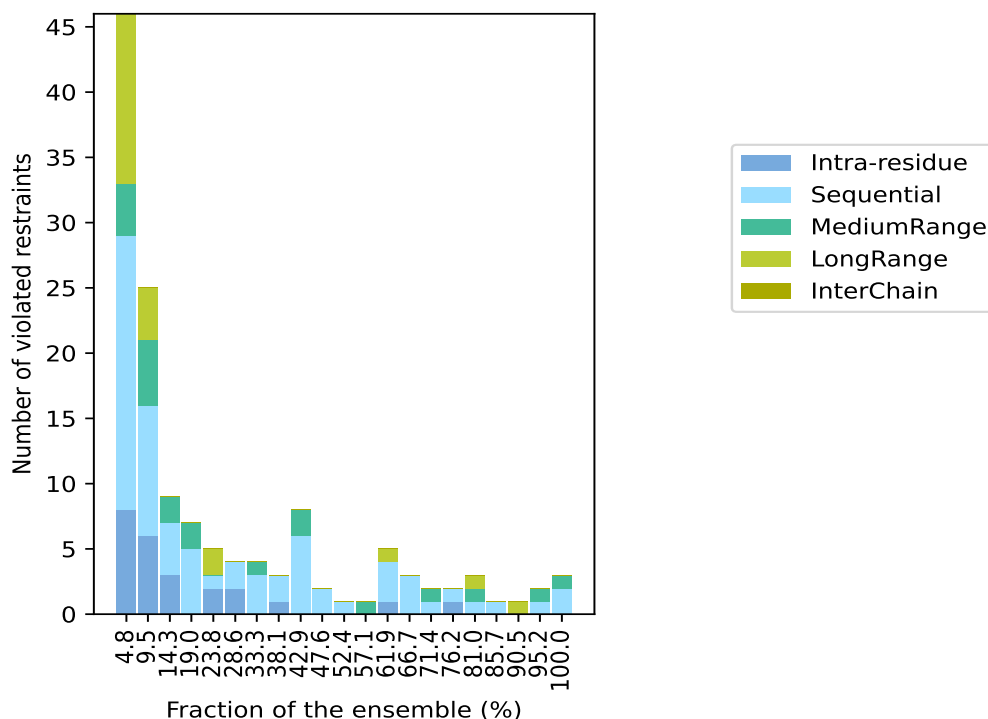
9.3 Distance violation statistics for the ensemble

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, 1503(IR:370, SQ:574, MR:253, LR:306, 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	%
8	21	4	13	0	46	1	4.8
6	10	5	4	0	25	2	9.5
3	4	2	0	0	9	3	14.3
0	5	2	0	0	7	4	19.0
2	1	0	2	0	5	5	23.8
2	2	0	0	0	4	6	28.6
0	3	1	0	0	4	7	33.3
1	2	0	0	0	3	8	38.1
0	6	2	0	0	8	9	42.9
0	2	0	0	0	2	10	47.6
0	1	0	0	0	1	11	52.4
0	0	1	0	0	1	12	57.1
1	3	0	1	0	5	13	61.9
0	3	0	0	0	3	14	66.7
0	1	1	0	0	2	15	71.4
1	1	0	0	0	2	16	76.2
0	1	1	1	0	3	17	81.0
0	1	0	0	0	1	18	85.7
0	0	0	1	0	1	19	90.5
0	1	1	0	0	2	20	95.2
0	2	1	0	0	3	21	100.0

¹Intra-residue restraints, ²Sequential restraints, ³Medium range restraints, ⁴Long range restraints, ⁵Inter-chain restraints, ⁶ Number of models with violations

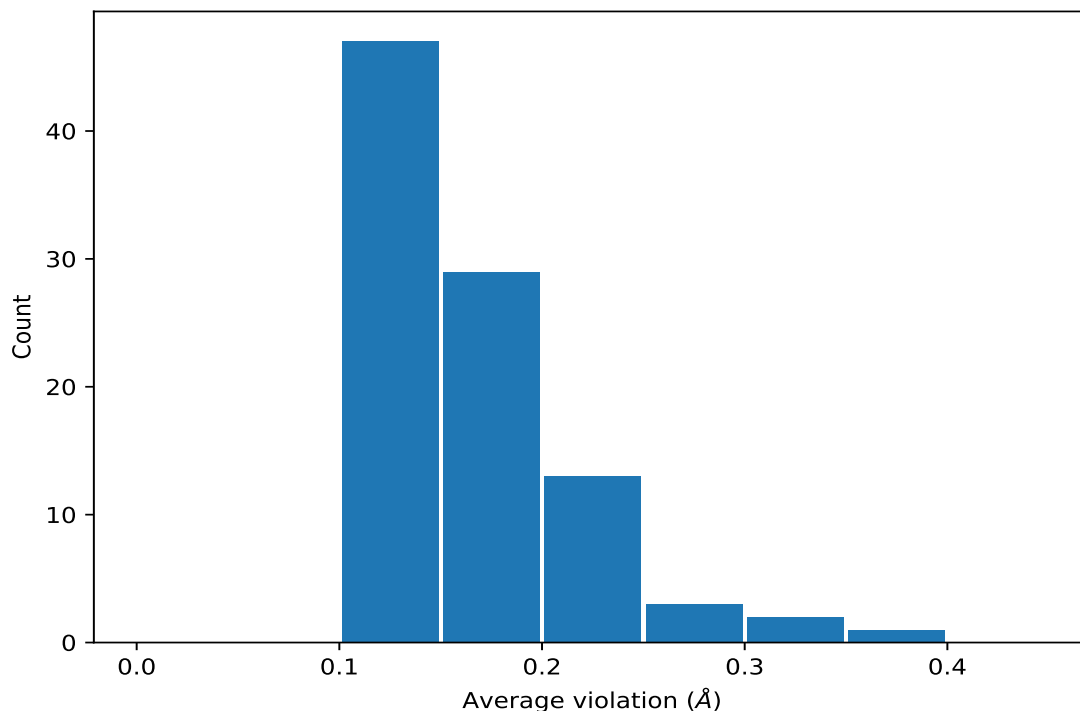
9.3.1 Bar graph : Distance violation statistics for the ensemble [\(i\)](#)



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)
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	21	0.39	0.08	0.39
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	21	0.35	0.07	0.35
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	21	0.13	0.01	0.14
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	20	0.18	0.04	0.18
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	20	0.14	0.02	0.14
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	19	0.31	0.06	0.32
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	18	0.22	0.06	0.22
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	17	0.27	0.05	0.27
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	17	0.18	0.07	0.16
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	17	0.17	0.05	0.16
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	16	0.19	0.06	0.17
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	16	0.13	0.01	0.12
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	15	0.16	0.03	0.15
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	15	0.15	0.03	0.14
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	14	0.22	0.07	0.24
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	14	0.16	0.04	0.15

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Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	14	0.14	0.03	0.13
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	13	0.18	0.05	0.17
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	13	0.18	0.05	0.19
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	13	0.16	0.03	0.16
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	13	0.16	0.04	0.15
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	13	0.16	0.03	0.15
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	12	0.16	0.04	0.16
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	11	0.21	0.08	0.16
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	10	0.16	0.02	0.16
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	10	0.15	0.03	0.15
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	9	0.2	0.06	0.18
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	9	0.17	0.06	0.13
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	9	0.16	0.05	0.14
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	9	0.16	0.03	0.15
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	9	0.15	0.03	0.15
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	9	0.15	0.02	0.14
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	9	0.14	0.03	0.13
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	9	0.12	0.01	0.12
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	8	0.19	0.02	0.18
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	8	0.17	0.03	0.18
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	8	0.15	0.02	0.16
(1,882)	1:A:110:SER:H	1:A:111:THR:H	7	0.21	0.05	0.2
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	7	0.17	0.04	0.16
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	7	0.13	0.01	0.13
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	7	0.13	0.02	0.11
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	6	0.2	0.06	0.18
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	6	0.16	0.04	0.15
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	6	0.14	0.03	0.12
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	6	0.12	0.01	0.12
(1,427)	1:A:58:VAL:H	1:A:58:VAL:HB	5	0.21	0.05	0.22
(1,856)	1:A:106:ILE:HB	1:A:142:TYR:HD1	5	0.17	0.03	0.18
(1,513)	1:A:69:VAL:H	1:A:70:GLY:H	5	0.14	0.02	0.15
(1,643)	1:A:85:LEU:HG	1:A:127:HIS:H	5	0.13	0.02	0.12
(1,548)	1:A:76:VAL:H	1:A:76:VAL:HB	5	0.11	0.0	0.11
(1,663)	1:A:87:GLU:HB2	1:A:88:ALA:H	4	0.18	0.02	0.18
(1,973)	1:A:122:THR:HA	1:A:125:LEU:HG	4	0.18	0.04	0.19
(1,333)	1:A:47:LEU:HB3	1:A:48:GLN:H	4	0.16	0.07	0.14
(1,567)	1:A:78:GLU:HA	1:A:82:ASP:H	4	0.14	0.02	0.14
(1,1041)	1:A:128:LEU:HG	1:A:129:LEU:HA	4	0.13	0.02	0.12
(1,887)	1:A:111:THR:H	1:A:112:GLY:H	4	0.12	0.02	0.12
(1,555)	1:A:77:SER:H	1:A:78:GLU:H	4	0.12	0.0	0.12
(1,876)	1:A:109:LEU:HA	1:A:109:LEU:HG	3	0.22	0.01	0.21

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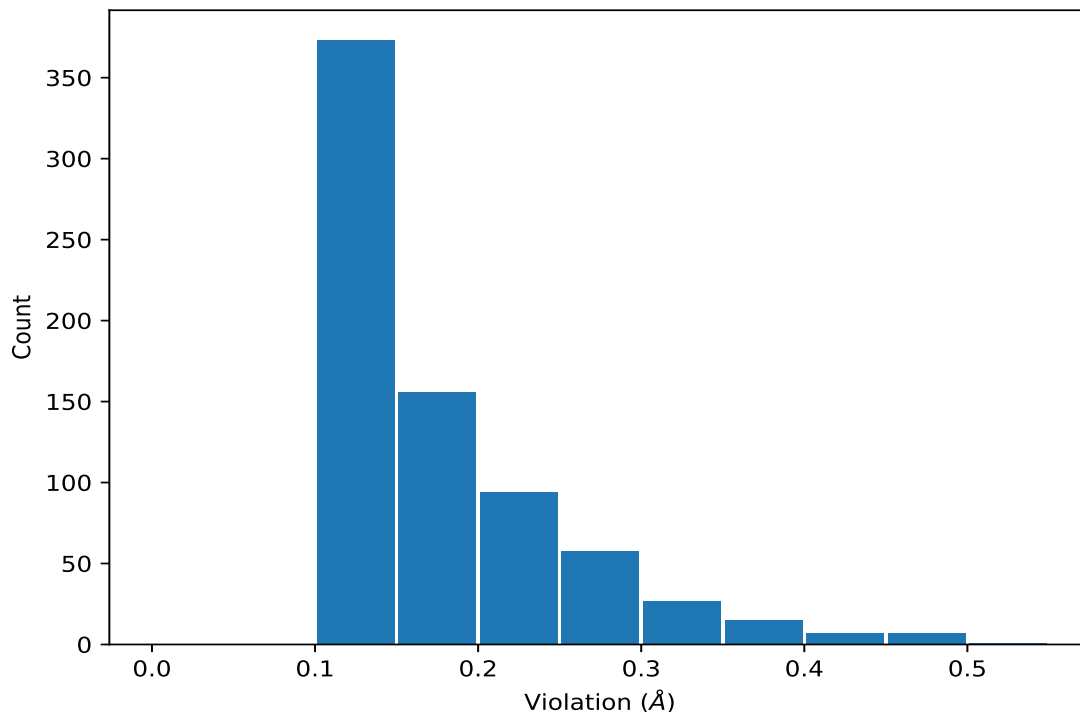
Key	Atom-1	Atom-2	Models ¹	Mean (Å)	SD ¹ (Å)	Median (Å)
(1,940)	1:A:119:ASP:HB3	1:A:120:ARG:HA	3	0.21	0.03	0.22
(1,1284)	1:A:159:ARG:HA	1:A:160:GLU:H	3	0.2	0.02	0.21
(1,105)	1:A:15:THR:H	1:A:15:THR:HB	3	0.17	0.02	0.18
(1,889)	1:A:111:THR:HA	1:A:115:SER:HA	3	0.15	0.04	0.14
(1,449)	1:A:59:LYS:HB3	1:A:60:GLY:H	3	0.15	0.04	0.13
(1,24)	1:A:5:HIS:HA	1:A:5:HIS:HD2	3	0.13	0.02	0.13
(1,572)	1:A:79:VAL:HA	1:A:82:ASP:H	3	0.13	0.03	0.12
(1,310)	1:A:44:SER:HB3	1:A:45:PHE:HA	3	0.11	0.0	0.11
(1,117)	1:A:16:GLU:HB2	1:A:18:VAL:H	2	0.28	0.11	0.28
(1,1096)	1:A:135:THR:HA	1:A:137:ALA:H	2	0.27	0.0	0.27
(1,10)	1:A:4:TYR:H	1:A:4:TYR:HD1	2	0.22	0.01	0.22
(1,822)	1:A:102:LYS:HB3	1:A:102:LYS:HE2	2	0.2	0.01	0.2
(1,822)	1:A:102:LYS:HB3	1:A:102:LYS:HE3	2	0.2	0.01	0.2
(1,873)	1:A:109:LEU:H	1:A:109:LEU:HG	2	0.18	0.06	0.18
(1,151)	1:A:20:ILE:H	1:A:20:ILE:HB	2	0.18	0.0	0.18
(1,343)	1:A:49:PRO:HB3	1:A:50:ILE:H	2	0.16	0.03	0.16
(1,689)	1:A:89:TYR:HD1	1:A:128:LEU:HG	2	0.16	0.05	0.16
(1,992)	1:A:124:SER:HA	1:A:128:LEU:H	2	0.15	0.03	0.15
(1,1114)	1:A:139:VAL:HB	1:A:140:ALA:H	2	0.15	0.0	0.15
(1,2)	1:A:2:PRO:HA	1:A:3:SER:H	2	0.14	0.01	0.14
(1,473)	1:A:63:LYS:HB2	1:A:64:HIS:H	2	0.14	0.02	0.14
(1,14)	1:A:4:TYR:HA	1:A:139:VAL:H	2	0.13	0.02	0.13
(1,134)	1:A:18:VAL:HB	1:A:19:ILE:H	2	0.13	0.01	0.13
(1,975)	1:A:122:THR:HB	1:A:123:GLN:H	2	0.13	0.01	0.13
(1,1146)	1:A:144:ARG:HB2	2:A:201:APR:H'3	2	0.12	0.01	0.12
(1,1146)	1:A:144:ARG:HB3	2:A:201:APR:H'3	2	0.12	0.01	0.12
(1,230)	1:A:37:LEU:HA	1:A:37:LEU:HG	2	0.12	0.01	0.12
(1,1020)	1:A:127:HIS:H	1:A:127:HIS:HE1	2	0.12	0.0	0.12
(1,72)	1:A:11:ILE:HB	1:A:12:ALA:H	2	0.12	0.0	0.12
(1,142)	1:A:19:ILE:H	1:A:20:ILE:H	2	0.12	0.0	0.12
(1,544)	1:A:75:LYS:HB3	1:A:76:VAL:HA	2	0.12	0.0	0.12
(1,964)	1:A:121:LEU:HB2	1:A:152:LEU:H	2	0.12	0.0	0.12
(1,964)	1:A:121:LEU:HB3	1:A:152:LEU:H	2	0.12	0.0	0.12
(1,1184)	1:A:148:TRP:HA	1:A:152:LEU:H	2	0.12	0.0	0.12
(2,124)	1:A:37:LEU:HB2	1:A:38:TYR:HE1	2	0.12	0.0	0.12
(2,124)	1:A:37:LEU:HB3	1:A:38:TYR:HE1	2	0.12	0.0	0.12
(1,1011)	1:A:126:ASN:H	1:A:128:LEU:H	2	0.11	0.0	0.11

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)
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	16	0.54
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	21	0.49
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	10	0.47
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	14	0.47
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	14	0.47
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	11	0.46
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	19	0.46
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	13	0.45
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	8	0.44
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	19	0.44

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	20	0.43
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	12	0.43
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	9	0.42
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	17	0.41
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	3	0.4
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	5	0.39
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	8	0.39
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	1	0.39
(1,117)	1:A:16:GLU:HB2	1:A:18:VAL:H	8	0.39
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	9	0.39
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	2	0.38
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	20	0.38
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	3	0.37
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	11	0.37
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	15	0.37
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	6	0.37
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	7	0.37
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	15	0.37
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	1	0.36
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	13	0.36
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	16	0.35
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	20	0.35
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	11	0.35
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	4	0.34
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	3	0.34
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	10	0.34
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	2	0.34
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	8	0.34
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	18	0.34
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	6	0.33
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	15	0.33
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	10	0.33
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	20	0.33
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	7	0.33
(1,1176)	1:A:148:TRP:H	1:A:148:TRP:HE3	13	0.33
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	7	0.32
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	2	0.32
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	6	0.32
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	3	0.32
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	19	0.32
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	3	0.32
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	12	0.32

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	21	0.32
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	10	0.32
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	1	0.32
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	14	0.32
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	9	0.31
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	12	0.3
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	5	0.3
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	16	0.3
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	5	0.3
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	10	0.3
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	4	0.3
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	12	0.3
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	5	0.3
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	15	0.3
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	3	0.3
(1,882)	1:A:110:SER:H	1:A:111:THR:H	12	0.29
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	17	0.29
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	11	0.29
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	11	0.29
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	19	0.29
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	18	0.29
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	10	0.29
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	21	0.29
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	17	0.28
(1,882)	1:A:110:SER:H	1:A:111:THR:H	14	0.28
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	7	0.28
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	18	0.28
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	4	0.28
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	20	0.28
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	15	0.28
(1,333)	1:A:47:LEU:HB3	1:A:48:GLN:H	1	0.28
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	1	0.28
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	13	0.28
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	16	0.28
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	12	0.28
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	18	0.27
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	21	0.27
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	14	0.27
(1,1096)	1:A:135:THR:HA	1:A:137:ALA:H	18	0.27
(1,1096)	1:A:135:THR:HA	1:A:137:ALA:H	21	0.27
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	19	0.27
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	18	0.26

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	3	0.26
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	8	0.26
(1,427)	1:A:58:VAL:H	1:A:58:VAL:HB	7	0.26
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	9	0.26
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	20	0.26
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	8	0.26
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	18	0.26
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	4	0.26
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	5	0.26
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	11	0.26
(1,940)	1:A:119:ASP:HB3	1:A:120:ARG:HA	20	0.25
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	4	0.25
(1,907)	1:A:115:SER:H	1:A:116:GLY:H	7	0.25
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	2	0.25
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	9	0.25
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	7	0.25
(1,427)	1:A:58:VAL:H	1:A:58:VAL:HB	21	0.25
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	21	0.25
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	13	0.25
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	8	0.25
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	20	0.25
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	9	0.24
(1,876)	1:A:109:LEU:HA	1:A:109:LEU:HG	11	0.24
(1,873)	1:A:109:LEU:H	1:A:109:LEU:HG	10	0.24
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	4	0.24
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	17	0.24
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	12	0.24
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	16	0.24
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	5	0.24
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	13	0.24
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	12	0.24
(1,327)	1:A:47:LEU:H	1:A:48:GLN:H	19	0.24
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	21	0.24
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	6	0.24
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	2	0.24
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	21	0.24
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	19	0.24
(1,1075)	1:A:132:LEU:HA	1:A:132:LEU:HG	14	0.24
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	2	0.24
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	16	0.23
(1,691)	1:A:89:TYR:HE1	1:A:109:LEU:HG	10	0.23
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	4	0.23

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	15	0.23
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	2	0.23
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	13	0.23
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	16	0.23
(1,334)	1:A:47:LEU:HB3	1:A:48:GLN:HG2	1	0.23
(1,334)	1:A:47:LEU:HB3	1:A:48:GLN:HG3	1	0.23
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	17	0.23
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	4	0.23
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	19	0.23
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	10	0.23
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	4	0.23
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	13	0.23
(1,10)	1:A:4:TYR:H	1:A:4:TYR:HD1	16	0.23
(1,940)	1:A:119:ASP:HB3	1:A:120:ARG:HA	17	0.22
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	19	0.22
(1,882)	1:A:110:SER:H	1:A:111:THR:H	10	0.22
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	11	0.22
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	21	0.22
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	11	0.22
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	11	0.22
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	2	0.22
(1,427)	1:A:58:VAL:H	1:A:58:VAL:HB	13	0.22
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	9	0.22
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	18	0.22
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	18	0.22
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	13	0.22
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	13	0.22
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	14	0.22
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	15	0.22
(1,973)	1:A:122:THR:HA	1:A:125:LEU:HG	7	0.21
(1,973)	1:A:122:THR:HA	1:A:125:LEU:HG	17	0.21
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	20	0.21
(1,876)	1:A:109:LEU:HA	1:A:109:LEU:HG	9	0.21
(1,876)	1:A:109:LEU:HA	1:A:109:LEU:HG	17	0.21
(1,856)	1:A:106:ILE:HB	1:A:142:TYR:HD1	18	0.21
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	13	0.21
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	7	0.21
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	7	0.21
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	13	0.21
(1,559)	1:A:77:SER:HA	1:A:81:GLY:H	9	0.21
(1,525)	1:A:73:PHE:HD2	1:A:78:GLU:HA	15	0.21
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	12	0.21

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	20	0.21
(1,427)	1:A:58:VAL:H	1:A:58:VAL:HB	17	0.21
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	12	0.21
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	8	0.21
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	20	0.21
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	3	0.21
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	18	0.21
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	12	0.21
(1,1284)	1:A:159:ARG:HA	1:A:160:GLU:H	11	0.21
(1,1284)	1:A:159:ARG:HA	1:A:160:GLU:H	18	0.21
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	9	0.21
(1,10)	1:A:4:TYR:H	1:A:4:TYR:HD1	21	0.21
(1,889)	1:A:111:THR:HA	1:A:115:SER:HA	18	0.2
(1,882)	1:A:110:SER:H	1:A:111:THR:H	13	0.2
(1,822)	1:A:102:LYS:HB3	1:A:102:LYS:HE2	21	0.2
(1,822)	1:A:102:LYS:HB3	1:A:102:LYS:HE3	21	0.2
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	13	0.2
(1,689)	1:A:89:TYR:HD1	1:A:128:LEU:HG	19	0.2
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	12	0.2
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	17	0.2
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	18	0.2
(1,663)	1:A:87:GLU:HB2	1:A:88:ALA:H	16	0.2
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	5	0.2
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	7	0.2
(1,449)	1:A:59:LYS:HB3	1:A:60:GLY:H	21	0.2
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	17	0.2
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	5	0.2
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	11	0.2
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	21	0.2
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	19	0.2
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	15	0.2
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	8	0.19
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	21	0.19
(1,822)	1:A:102:LYS:HB3	1:A:102:LYS:HE2	13	0.19
(1,822)	1:A:102:LYS:HB3	1:A:102:LYS:HE3	13	0.19
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	2	0.19
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	10	0.19
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	1	0.19
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	3	0.19
(1,663)	1:A:87:GLU:HB2	1:A:88:ALA:H	4	0.19
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	1	0.19
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	9	0.19

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	3	0.19
(1,343)	1:A:49:PRO:HB3	1:A:50:ILE:H	13	0.19
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	14	0.19
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	1	0.19
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	18	0.19
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	9	0.19
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	11	0.19
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	10	0.19
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	18	0.19
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	19	0.19
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	10	0.19
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	13	0.19
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	9	0.19
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	11	0.19
(1,1092)	1:A:135:THR:H	1:A:135:THR:HB	20	0.19
(1,105)	1:A:15:THR:H	1:A:15:THR:HB	9	0.19
(1,992)	1:A:124:SER:HA	1:A:128:LEU:H	12	0.18
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	13	0.18
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	2	0.18
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	16	0.18
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	1	0.18
(1,856)	1:A:106:ILE:HB	1:A:142:TYR:HD1	9	0.18
(1,856)	1:A:106:ILE:HB	1:A:142:TYR:HD1	17	0.18
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	14	0.18
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	19	0.18
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	20	0.18
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	19	0.18
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	9	0.18
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	17	0.18
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	15	0.18
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	15	0.18
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	11	0.18
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	19	0.18
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	19	0.18
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	8	0.18
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	19	0.18
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	8	0.18
(1,347)	1:A:50:ILE:H	1:A:50:ILE:HB	3	0.18
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	15	0.18
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	17	0.18
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	11	0.18
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	19	0.18

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,151)	1:A:20:ILE:H	1:A:20:ILE:HB	10	0.18
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	1	0.18
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	17	0.18
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	14	0.18
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	1	0.18
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	11	0.18
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	8	0.18
(1,105)	1:A:15:THR:H	1:A:15:THR:HB	15	0.18
(1,973)	1:A:122:THR:HA	1:A:125:LEU:HG	9	0.17
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	8	0.17
(1,940)	1:A:119:ASP:HB3	1:A:120:ARG:HA	15	0.17
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	15	0.17
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	11	0.17
(1,882)	1:A:110:SER:H	1:A:111:THR:H	5	0.17
(1,881)	1:A:109:LEU:HB2	1:A:110:SER:HA	15	0.17
(1,881)	1:A:109:LEU:HB3	1:A:110:SER:HA	15	0.17
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	15	0.17
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	1	0.17
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	11	0.17
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	1	0.17
(1,663)	1:A:87:GLU:HB2	1:A:88:ALA:H	21	0.17
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	6	0.17
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	13	0.17
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	18	0.17
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	2	0.17
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	3	0.17
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	6	0.17
(1,572)	1:A:79:VAL:HA	1:A:82:ASP:H	2	0.17
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	17	0.17
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	14	0.17
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	15	0.17
(1,492)	1:A:65:ILE:HB	1:A:66:ILE:H	11	0.17
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	3	0.17
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	20	0.17
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	20	0.17
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	20	0.17
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	2	0.17
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	9	0.17
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	9	0.17
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	6	0.17
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	10	0.17
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	20	0.17

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,151)	1:A:20:ILE:H	1:A:20:ILE:HB	14	0.17
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	5	0.17
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	2	0.17
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	9	0.17
(1,129)	1:A:18:VAL:H	1:A:18:VAL:HB	15	0.17
(1,1284)	1:A:159:ARG:HA	1:A:160:GLU:H	14	0.17
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	4	0.17
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	17	0.17
(1,117)	1:A:16:GLU:HB2	1:A:18:VAL:H	21	0.17
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	12	0.16
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	16	0.16
(1,925)	1:A:118:LYS:HB2	1:A:119:ASP:H	20	0.16
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	9	0.16
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	15	0.16
(1,882)	1:A:110:SER:H	1:A:111:THR:H	1	0.16
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	18	0.16
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	11	0.16
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	13	0.16
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	1	0.16
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	3	0.16
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	3	0.16
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	12	0.16
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	14	0.16
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	15	0.16
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	10	0.16
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	20	0.16
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	2	0.16
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	8	0.16
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	5	0.16
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	17	0.16
(1,643)	1:A:85:LEU:HG	1:A:127:HIS:H	5	0.16
(1,607)	1:A:83:LYS:H	1:A:86:ALA:H	15	0.16
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	9	0.16
(1,552)	1:A:76:VAL:HB	1:A:77:SER:H	19	0.16
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	4	0.16
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	12	0.16
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	21	0.16
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	11	0.16
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	12	0.16
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	20	0.16
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	16	0.16
(1,473)	1:A:63:LYS:HB2	1:A:64:HIS:H	7	0.16

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	21	0.16
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	8	0.16
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	14	0.16
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	6	0.16
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	18	0.16
(1,24)	1:A:5:HIS:HA	1:A:5:HIS:HD2	6	0.16
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	7	0.16
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	3	0.16
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	14	0.16
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	2	0.16
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	3	0.16
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	20	0.16
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	4	0.16
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	10	0.16
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	13	0.16
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	15	0.16
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	16	0.16
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	2	0.16
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	5	0.16
(1,986)	1:A:123:GLN:HA	1:A:127:HIS:H	4	0.15
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	2	0.15
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	3	0.15
(1,887)	1:A:111:THR:H	1:A:112:GLY:H	17	0.15
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	8	0.15
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	4	0.15
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	8	0.15
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	11	0.15
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	2	0.15
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	8	0.15
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	10	0.15
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	6	0.15
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	13	0.15
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	14	0.15
(1,663)	1:A:87:GLU:HB2	1:A:88:ALA:H	20	0.15
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	2	0.15
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	17	0.15
(1,567)	1:A:78:GLU:HA	1:A:82:ASP:H	13	0.15
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	9	0.15
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	10	0.15
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	7	0.15
(1,513)	1:A:69:VAL:H	1:A:70:GLY:H	1	0.15
(1,513)	1:A:69:VAL:H	1:A:70:GLY:H	8	0.15

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,513)	1:A:69:VAL:H	1:A:70:GLY:H	19	0.15
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	1	0.15
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	21	0.15
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	10	0.15
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	14	0.15
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	1	0.15
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	9	0.15
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	12	0.15
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	10	0.15
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	15	0.15
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	3	0.15
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	11	0.15
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	18	0.15
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	15	0.15
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	1	0.15
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	10	0.15
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	20	0.15
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	1	0.15
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	14	0.15
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	15	0.15
(1,178)	1:A:22:ALA:HA	1:A:23:ALA:HA	9	0.15
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	5	0.15
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	16	0.15
(1,171)	1:A:21:ASN:HB2	1:A:68:ALA:H	6	0.15
(1,161)	1:A:20:ILE:HB	1:A:106:ILE:HA	14	0.15
(1,14)	1:A:4:TYR:HA	1:A:139:VAL:H	16	0.15
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	8	0.15
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	10	0.15
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	16	0.15
(1,131)	1:A:18:VAL:H	1:A:105:ALA:H	17	0.15
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	14	0.15
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	6	0.15
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	7	0.15
(1,1114)	1:A:139:VAL:HB	1:A:140:ALA:H	4	0.15
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	1	0.15
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	3	0.15
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	10	0.15
(1,1041)	1:A:128:LEU:HG	1:A:129:LEU:HA	14	0.15
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	9	0.15
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	4	0.14
(1,975)	1:A:122:THR:HB	1:A:123:GLN:H	13	0.14
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	13	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	14	0.14
(1,926)	1:A:118:LYS:HB2	1:A:120:ARG:HG2	16	0.14
(1,926)	1:A:118:LYS:HB2	1:A:120:ARG:HG3	16	0.14
(1,889)	1:A:111:THR:HA	1:A:115:SER:HA	17	0.14
(1,882)	1:A:110:SER:H	1:A:111:THR:H	17	0.14
(1,856)	1:A:106:ILE:HB	1:A:142:TYR:HD1	6	0.14
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	2	0.14
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	6	0.14
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	15	0.14
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	18	0.14
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	5	0.14
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	13	0.14
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	18	0.14
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	8	0.14
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	18	0.14
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	3	0.14
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	4	0.14
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	5	0.14
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	5	0.14
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	16	0.14
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	17	0.14
(1,567)	1:A:78:GLU:HA	1:A:82:ASP:H	19	0.14
(1,567)	1:A:78:GLU:HA	1:A:82:ASP:H	21	0.14
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	9	0.14
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	13	0.14
(1,333)	1:A:47:LEU:HB3	1:A:48:GLN:H	15	0.14
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	16	0.14
(1,33)	1:A:6:VAL:HB	1:A:7:VAL:H	17	0.14
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	13	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	1	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	5	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	6	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	7	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	15	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	16	0.14
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	17	0.14
(1,23)	1:A:5:HIS:H	1:A:141:ILE:H	21	0.14
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	7	0.14
(1,2)	1:A:2:PRO:HA	1:A:3:SER:H	3	0.14
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	18	0.14
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	11	0.14
(1,176)	1:A:22:ALA:H	1:A:23:ALA:H	15	0.14

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	21	0.14
(1,134)	1:A:18:VAL:HB	1:A:19:ILE:H	5	0.14
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	5	0.14
(1,12)	1:A:4:TYR:HA	1:A:4:TYR:HD1	12	0.14
(1,1133)	1:A:142:TYR:HD1	2:A:201:APR:H2	4	0.14
(1,1114)	1:A:139:VAL:HB	1:A:140:ALA:H	20	0.14
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	16	0.14
(1,1083)	1:A:133:ASP:HA	1:A:134:THR:HB	2	0.14
(1,105)	1:A:15:THR:H	1:A:15:THR:HB	5	0.14
(1,1041)	1:A:128:LEU:HG	1:A:129:LEU:HA	3	0.14
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	14	0.14
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	2	0.14
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	11	0.13
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	6	0.13
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	6	0.13
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	19	0.13
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	21	0.13
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	7	0.13
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	10	0.13
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	16	0.13
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	17	0.13
(1,856)	1:A:106:ILE:HB	1:A:142:TYR:HD1	15	0.13
(1,842)	1:A:104:VAL:HB	1:A:105:ALA:HA	19	0.13
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	10	0.13
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	17	0.13
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	3	0.13
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	5	0.13
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	1	0.13
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	7	0.13
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	11	0.13
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	4	0.13
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	11	0.13
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	21	0.13
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	2	0.13
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	9	0.13
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	15	0.13
(1,643)	1:A:85:LEU:HG	1:A:127:HIS:H	21	0.13
(1,596)	1:A:82:ASP:HB2	1:A:83:LYS:HA	3	0.13
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	14	0.13
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	20	0.13
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	3	0.13
(1,517)	1:A:72:ASN:HA	1:A:114:PHE:HA	16	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,513)	1:A:69:VAL:H	1:A:70:GLY:H	18	0.13
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	11	0.13
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	17	0.13
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	11	0.13
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	16	0.13
(1,449)	1:A:59:LYS:HB3	1:A:60:GLY:H	7	0.13
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	7	0.13
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	17	0.13
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	1	0.13
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	2	0.13
(1,343)	1:A:49:PRO:HB3	1:A:50:ILE:H	7	0.13
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	4	0.13
(1,333)	1:A:47:LEU:HB3	1:A:48:GLN:H	3	0.13
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	4	0.13
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	16	0.13
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	17	0.13
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	12	0.13
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	13	0.13
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	20	0.13
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	21	0.13
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	5	0.13
(1,240)	1:A:38:TYR:HA	1:A:38:TYR:HE1	6	0.13
(1,24)	1:A:5:HIS:HA	1:A:5:HIS:HD2	3	0.13
(1,230)	1:A:37:LEU:HA	1:A:37:LEU:HG	12	0.13
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	6	0.13
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	1	0.13
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	12	0.13
(1,2)	1:A:2:PRO:HA	1:A:3:SER:H	12	0.13
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	3	0.13
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	4	0.13
(1,135)	1:A:18:VAL:HB	1:A:19:ILE:HA	7	0.13
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	1	0.13
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	13	0.13
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	18	0.13
(1,1215)	1:A:151:THR:HB	1:A:152:LEU:HA	13	0.13
(1,1146)	1:A:144:ARG:HB2	2:A:201:APR:H'3	6	0.13
(1,1146)	1:A:144:ARG:HB3	2:A:201:APR:H'3	6	0.13
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	1	0.13
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	15	0.13
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	17	0.13
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	21	0.13
(1,1019)	1:A:127:HIS:H	1:A:127:HIS:HD2	6	0.13

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,1007)	1:A:125:LEU:HG	1:A:129:LEU:HG	6	0.13
(1,1006)	1:A:125:LEU:HG	1:A:126:ASN:H	4	0.13
(2,124)	1:A:37:LEU:HB2	1:A:38:TYR:HE1	5	0.12
(2,124)	1:A:37:LEU:HB3	1:A:38:TYR:HE1	5	0.12
(1,992)	1:A:124:SER:HA	1:A:128:LEU:H	17	0.12
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	15	0.12
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	20	0.12
(1,975)	1:A:122:THR:HB	1:A:123:GLN:H	20	0.12
(1,973)	1:A:122:THR:HA	1:A:125:LEU:HG	8	0.12
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	12	0.12
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	14	0.12
(1,964)	1:A:121:LEU:HB2	1:A:152:LEU:H	5	0.12
(1,964)	1:A:121:LEU:HB3	1:A:152:LEU:H	5	0.12
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	1	0.12
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	11	0.12
(1,94)	1:A:13:THR:HA	1:A:14:ALA:H	15	0.12
(1,937)	1:A:119:ASP:HB2	1:A:120:ARG:H	5	0.12
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	5	0.12
(1,905)	1:A:114:PHE:HA	1:A:115:SER:HA	6	0.12
(1,887)	1:A:111:THR:H	1:A:112:GLY:H	14	0.12
(1,873)	1:A:109:LEU:H	1:A:109:LEU:HG	9	0.12
(1,823)	1:A:102:LYS:HB3	1:A:103:SER:H	15	0.12
(1,820)	1:A:102:LYS:HB2	1:A:103:SER:HA	13	0.12
(1,796)	1:A:101:TYR:HA	1:A:101:TYR:HE1	4	0.12
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	15	0.12
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	20	0.12
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	6	0.12
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	12	0.12
(1,764)	1:A:96:VAL:HA	1:A:101:TYR:HD1	14	0.12
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	6	0.12
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	20	0.12
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	14	0.12
(1,73)	1:A:11:ILE:HB	1:A:12:ALA:HA	19	0.12
(1,72)	1:A:11:ILE:HB	1:A:12:ALA:H	9	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	1	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	9	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	13	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	16	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	17	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	18	0.12
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	19	0.12
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	6	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	2	0.12
(1,664)	1:A:87:GLU:HB2	1:A:89:TYR:H	10	0.12
(1,643)	1:A:85:LEU:HG	1:A:127:HIS:H	3	0.12
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	8	0.12
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	10	0.12
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	16	0.12
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	21	0.12
(1,572)	1:A:79:VAL:HA	1:A:82:ASP:H	20	0.12
(1,555)	1:A:77:SER:H	1:A:78:GLU:H	1	0.12
(1,555)	1:A:77:SER:H	1:A:78:GLU:H	8	0.12
(1,555)	1:A:77:SER:H	1:A:78:GLU:H	14	0.12
(1,548)	1:A:76:VAL:H	1:A:76:VAL:HB	7	0.12
(1,548)	1:A:76:VAL:H	1:A:76:VAL:HB	15	0.12
(1,544)	1:A:75:LYS:HB3	1:A:76:VAL:HA	9	0.12
(1,543)	1:A:75:LYS:HB3	1:A:76:VAL:H	19	0.12
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	16	0.12
(1,527)	1:A:74:ASN:H	1:A:75:LYS:H	5	0.12
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	6	0.12
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	7	0.12
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	13	0.12
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	21	0.12
(1,453)	1:A:60:GLY:H	1:A:61:ALA:H	5	0.12
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	1	0.12
(1,427)	1:A:58:VAL:H	1:A:58:VAL:HB	20	0.12
(1,413)	1:A:56:ARG:H	1:A:68:ALA:HA	11	0.12
(1,410)	1:A:56:ARG:H	1:A:57:LEU:H	14	0.12
(1,379)	1:A:53:GLY:HA3	1:A:88:ALA:HA	6	0.12
(1,376)	1:A:53:GLY:H	1:A:54:LYS:H	9	0.12
(1,354)	1:A:50:ILE:HB	1:A:51:GLU:H	2	0.12
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	4	0.12
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	8	0.12
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	12	0.12
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	15	0.12
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	17	0.12
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	18	0.12
(1,331)	1:A:47:LEU:HB2	1:A:48:GLN:H	13	0.12
(1,310)	1:A:44:SER:HB3	1:A:45:PHE:HA	6	0.12
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	4	0.12
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	9	0.12
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	10	0.12
(1,272)	1:A:40:LYS:HB2	1:A:41:PHE:H	12	0.12
(1,223)	1:A:36:ALA:HA	1:A:40:LYS:H	14	0.12

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	21	0.12
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	4	0.12
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	8	0.12
(1,142)	1:A:19:ILE:H	1:A:20:ILE:H	9	0.12
(1,134)	1:A:18:VAL:HB	1:A:19:ILE:H	1	0.12
(1,130)	1:A:18:VAL:H	1:A:19:ILE:H	17	0.12
(1,1184)	1:A:148:TRP:HA	1:A:152:LEU:H	5	0.12
(1,1146)	1:A:144:ARG:HB2	2:A:201:APR:H'3	14	0.12
(1,1146)	1:A:144:ARG:HB3	2:A:201:APR:H'3	14	0.12
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	12	0.12
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	13	0.12
(1,1020)	1:A:127:HIS:H	1:A:127:HIS:HE1	7	0.12
(1,1020)	1:A:127:HIS:H	1:A:127:HIS:HE1	13	0.12
(2,124)	1:A:37:LEU:HB2	1:A:38:TYR:HE1	15	0.11
(2,124)	1:A:37:LEU:HB3	1:A:38:TYR:HE1	15	0.11
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	2	0.11
(1,977)	1:A:123:GLN:H	1:A:123:GLN:HA	8	0.11
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	5	0.11
(1,965)	1:A:121:LEU:HG	1:A:122:THR:H	16	0.11
(1,964)	1:A:121:LEU:HB2	1:A:152:LEU:H	16	0.11
(1,964)	1:A:121:LEU:HB3	1:A:152:LEU:H	16	0.11
(1,952)	1:A:121:LEU:H	1:A:122:THR:H	10	0.11
(1,889)	1:A:111:THR:HA	1:A:115:SER:HA	15	0.11
(1,887)	1:A:111:THR:H	1:A:112:GLY:H	12	0.11
(1,887)	1:A:111:THR:H	1:A:112:GLY:H	15	0.11
(1,843)	1:A:104:VAL:HB	1:A:140:ALA:H	12	0.11
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	1	0.11
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	3	0.11
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	8	0.11
(1,789)	1:A:100:ASN:HB3	1:A:101:TYR:HD1	20	0.11
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	6	0.11
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	8	0.11
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	9	0.11
(1,785)	1:A:100:ASN:HB2	1:A:101:TYR:HA	12	0.11
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	16	0.11
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	19	0.11
(1,757)	1:A:95:ILE:HB	1:A:97:ASN:H	21	0.11
(1,72)	1:A:11:ILE:HB	1:A:12:ALA:H	17	0.11
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	10	0.11
(1,700)	1:A:91:SER:H	1:A:91:SER:HA	14	0.11
(1,689)	1:A:89:TYR:HD1	1:A:128:LEU:HG	2	0.11
(1,677)	1:A:89:TYR:H	1:A:89:TYR:HD1	14	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,643)	1:A:85:LEU:HG	1:A:127:HIS:H	2	0.11
(1,643)	1:A:85:LEU:HG	1:A:127:HIS:H	16	0.11
(1,629)	1:A:85:LEU:H	1:A:85:LEU:HG	2	0.11
(1,598)	1:A:82:ASP:HB3	1:A:83:LYS:HA	4	0.11
(1,595)	1:A:82:ASP:HB2	1:A:83:LYS:H	10	0.11
(1,592)	1:A:82:ASP:HA	1:A:85:LEU:H	4	0.11
(1,572)	1:A:79:VAL:HA	1:A:82:ASP:H	3	0.11
(1,567)	1:A:78:GLU:HA	1:A:82:ASP:H	20	0.11
(1,555)	1:A:77:SER:H	1:A:78:GLU:H	17	0.11
(1,548)	1:A:76:VAL:H	1:A:76:VAL:HB	2	0.11
(1,548)	1:A:76:VAL:H	1:A:76:VAL:HB	3	0.11
(1,548)	1:A:76:VAL:H	1:A:76:VAL:HB	4	0.11
(1,544)	1:A:75:LYS:HB3	1:A:76:VAL:HA	3	0.11
(1,540)	1:A:75:LYS:HB2	1:A:76:VAL:HA	13	0.11
(1,513)	1:A:69:VAL:H	1:A:70:GLY:H	12	0.11
(1,508)	1:A:68:ALA:H	1:A:69:VAL:H	17	0.11
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	2	0.11
(1,500)	1:A:66:ILE:HB	1:A:67:HIS:H	19	0.11
(1,48)	1:A:7:VAL:H	1:A:143:CYS:H	21	0.11
(1,473)	1:A:63:LYS:HB2	1:A:64:HIS:H	13	0.11
(1,47)	1:A:7:VAL:H	1:A:142:TYR:HA	17	0.11
(1,449)	1:A:59:LYS:HB3	1:A:60:GLY:H	13	0.11
(1,447)	1:A:59:LYS:HB2	1:A:60:GLY:H	18	0.11
(1,431)	1:A:58:VAL:HA	1:A:65:ILE:H	7	0.11
(1,344)	1:A:49:PRO:HB3	1:A:50:ILE:HA	11	0.11
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	2	0.11
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	16	0.11
(1,34)	1:A:6:VAL:HB	1:A:7:VAL:HA	19	0.11
(1,333)	1:A:47:LEU:HB3	1:A:48:GLN:H	9	0.11
(1,310)	1:A:44:SER:HB3	1:A:45:PHE:HA	9	0.11
(1,310)	1:A:44:SER:HB3	1:A:45:PHE:HA	14	0.11
(1,305)	1:A:44:SER:HB2	1:A:45:PHE:HA	9	0.11
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	8	0.11
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	14	0.11
(1,287)	1:A:42:PRO:HA	1:A:43:GLU:HA	19	0.11
(1,273)	1:A:40:LYS:HB2	1:A:41:PHE:HD1	11	0.11
(1,24)	1:A:5:HIS:HA	1:A:5:HIS:HD2	5	0.11
(1,230)	1:A:37:LEU:HA	1:A:37:LEU:HG	21	0.11
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	3	0.11
(1,215)	1:A:35:GLY:HA3	1:A:39:LYS:H	10	0.11
(1,211)	1:A:33:VAL:HA	1:A:36:ALA:H	3	0.11
(1,18)	1:A:4:TYR:HD1	1:A:139:VAL:HB	17	0.11

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Key	Atom-1	Atom-2	Model ID	Violation (Å)
(1,142)	1:A:19:ILE:H	1:A:20:ILE:H	13	0.11
(1,14)	1:A:4:TYR:HA	1:A:139:VAL:H	21	0.11
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	3	0.11
(1,1266)	1:A:157:ALA:H	1:A:158:ARG:H	6	0.11
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	3	0.11
(1,1227)	1:A:152:LEU:HG	1:A:153:LYS:H	15	0.11
(1,1184)	1:A:148:TRP:HA	1:A:152:LEU:H	21	0.11
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	7	0.11
(1,1097)	1:A:135:THR:HB	1:A:136:ASP:H	19	0.11
(1,1041)	1:A:128:LEU:HG	1:A:129:LEU:HA	13	0.11
(1,1041)	1:A:128:LEU:HG	1:A:129:LEU:HA	18	0.11
(1,1035)	1:A:128:LEU:HA	1:A:130:THR:H	6	0.11
(1,1011)	1:A:126:ASN:H	1:A:128:LEU:H	5	0.11
(1,1011)	1:A:126:ASN:H	1:A:128:LEU:H	12	0.11

10 Dihedral-angle violation analysis

No dihedral-angle restraints found