



# Full wwPDB NMR Structure Validation Report ⓘ

May 28, 2020 – 11:22 pm BST

PDB ID : 2LP4  
Title : Solution structure of P1-CheY/P2 complex in bacterial chemotaxis  
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Deposited on : 2012-01-31

This is a Full wwPDB NMR Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

Cyrange : Kirchner and Güntert (2011)  
NmrClust : Kelley et al. (1996)  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
RCI : v\_1n\_11\_5\_13\_A (Berjanski et al., 2005)  
PANAV : Wang et al. (2010)  
ShiftChecker : 2.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.11

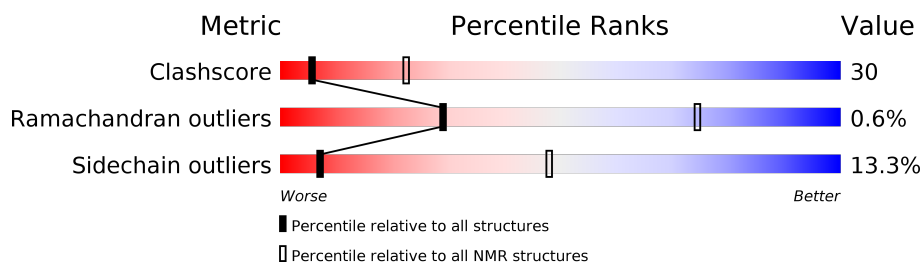
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 6%.

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  $\geq 3$ , 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	225	
2	Y	128	

## 2 Ensemble composition and analysis ⓘ

This entry contains 25 models. Model 3 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:7-A:132 (126)	0.04	7
2	A:160-A:225, Y:2-Y:129 (194)	0.00	3

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 4 clusters. No single-model clusters were found.

Cluster number	Models
1	1, 6, 10, 11, 12, 14, 21, 24
2	2, 5, 8, 17, 18, 19, 20, 22
3	3, 7, 9, 16, 23
4	4, 13, 15, 25

### 3 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 5367 atoms, of which 2669 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Chemotaxis protein CheA.

Mol	Chain	Residues	Atoms						Trace
1	A	225	Total	C	H	N	O	S	0
			3439	1087	1695	284	365	8	

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	29	ASP	VAL	SEE REMARK 999	UNP P07363
A	31	VAL	GLN	SEE REMARK 999	UNP P07363
A	34	SER	ALA	SEE REMARK 999	UNP P07363
A	60	THR	SER	SEE REMARK 999	UNP P07363
A	61	ILE	VAL	SEE REMARK 999	UNP P07363
A	107	ASN	GLN	SEE REMARK 999	UNP P07363
A	109	GLU	GLN	SEE REMARK 999	UNP P07363
A	117	GLU	ASP	SEE REMARK 999	UNP P07363
A	121	ASN	GLN	SEE REMARK 999	UNP P07363

- Molecule 2 is a protein called Chemotaxis protein CheY.

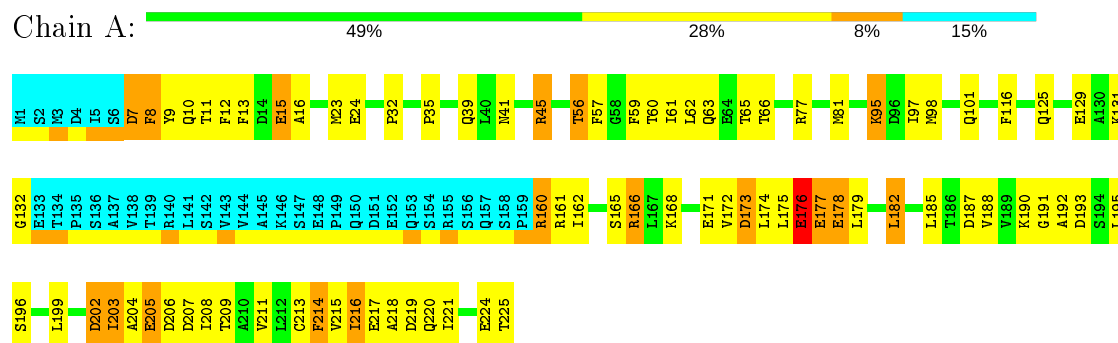
Mol	Chain	Residues	Atoms						Trace
2	Y	128	Total	C	H	N	O	S	0
			1928	612	974	154	182	6	

## 4 Residue-property plots

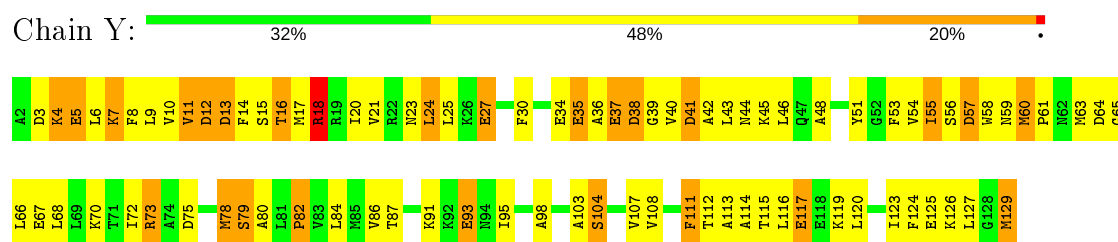
### 4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA and DNA 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: Chemotaxis protein CheA



- Molecule 2: Chemotaxis protein CheY



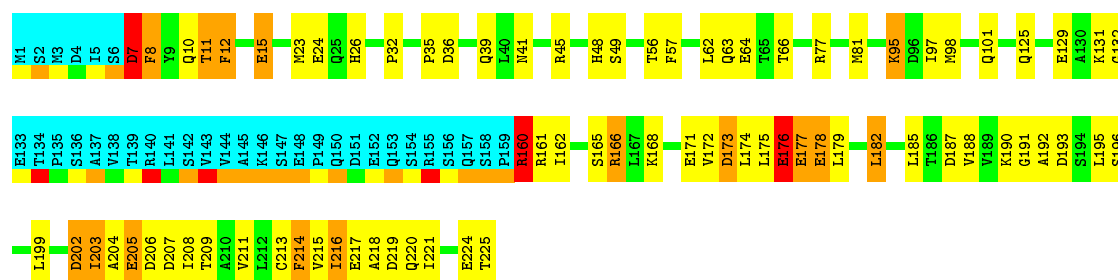
### 4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

#### 4.2.1 Score per residue for model 1

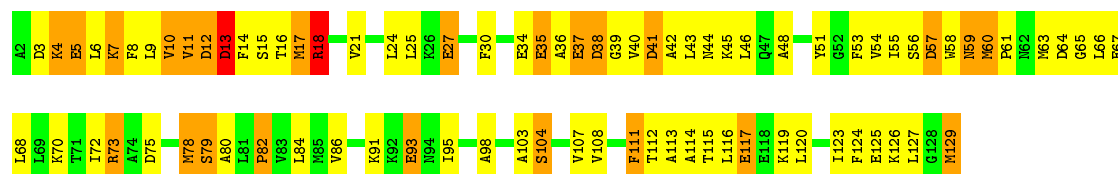
- Molecule 1: Chemotaxis protein CheA





#### • Molecule 2: Chemotaxis protein CheY

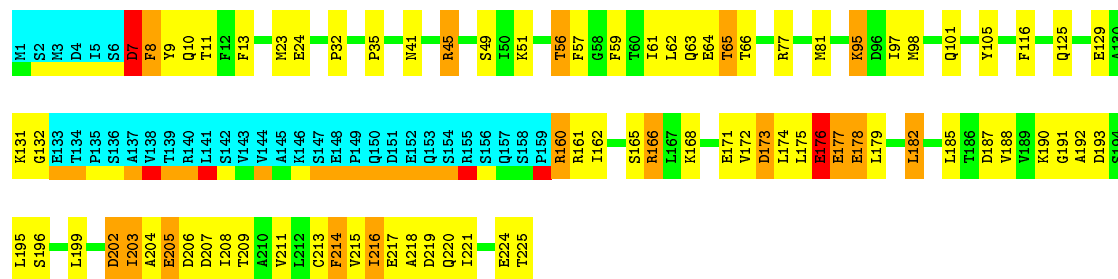
Chain Y: 34% 45% 19%



### 4.2.2 Score per residue for model 2

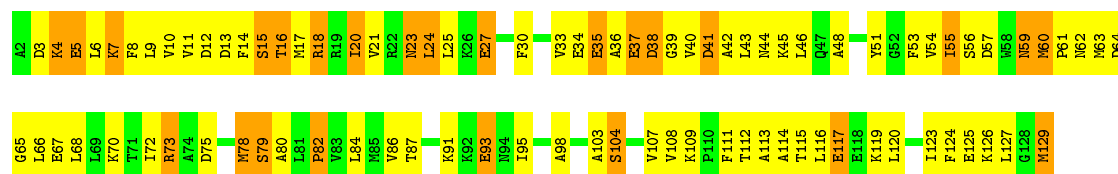
#### • Molecule 1: Chemotaxis protein CheA

Chain A: 49% 28% 7% 15%



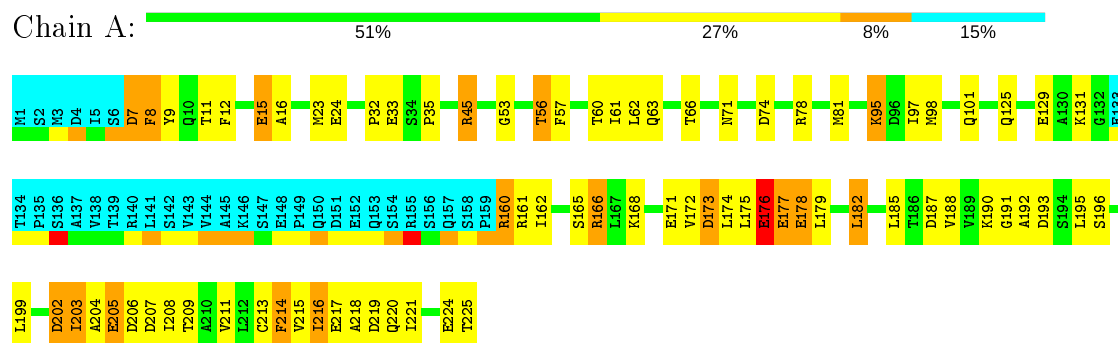
#### • Molecule 2: Chemotaxis protein CheY

Chain Y: 30% 50% 20%

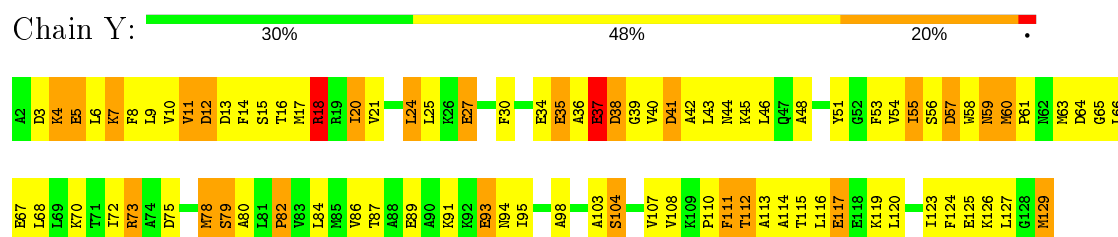


### 4.2.3 Score per residue for model 3 (medoid)

#### • Molecule 1: Chemotaxis protein CheA

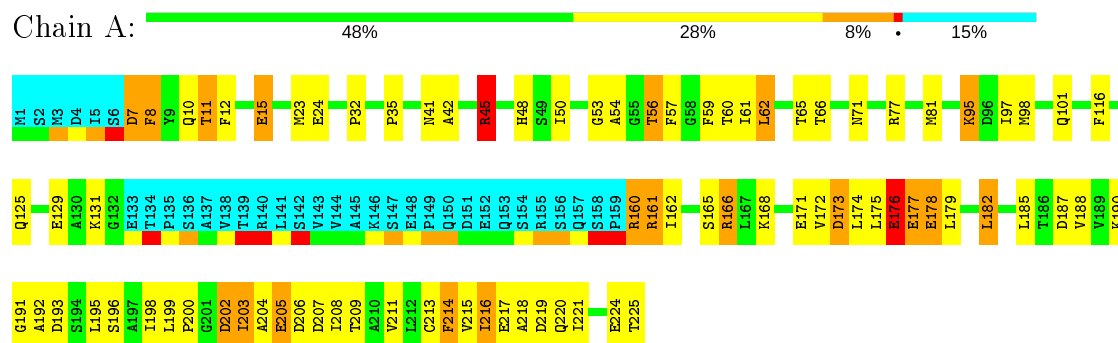


- Molecule 2: Chemotaxis protein CheY

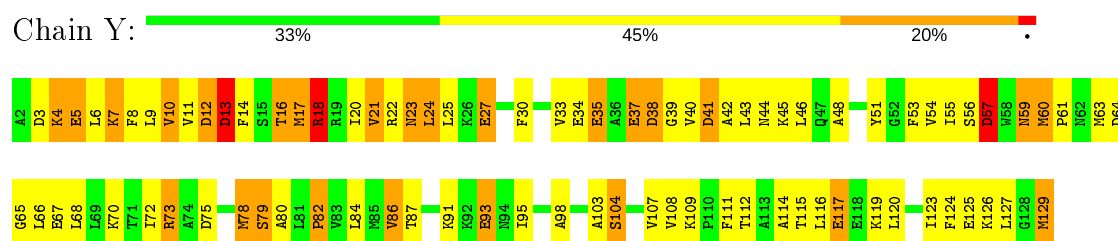


#### 4.2.4 Score per residue for model 4

- Molecule 1: Chemotaxis protein CheA

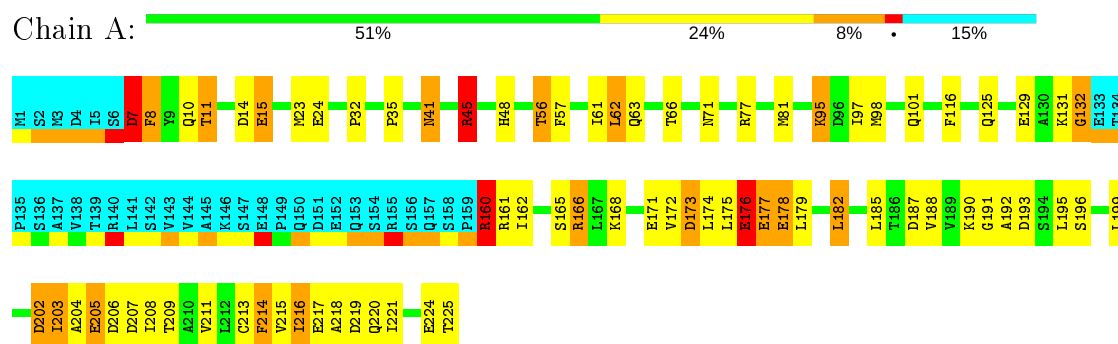


- Molecule 2: Chemotaxis protein CheY

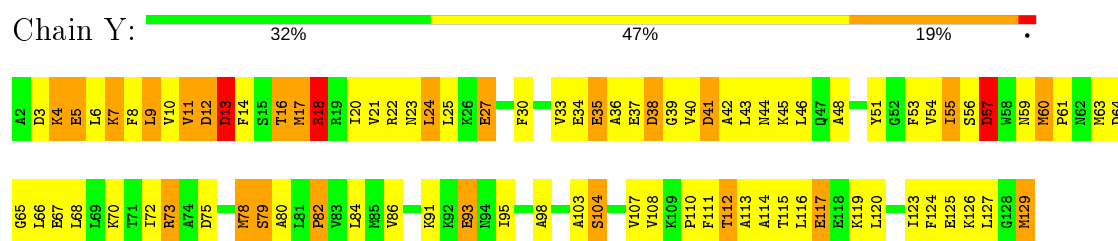


### 4.2.5 Score per residue for model 5

- Molecule 1: Chemotaxis protein CheA

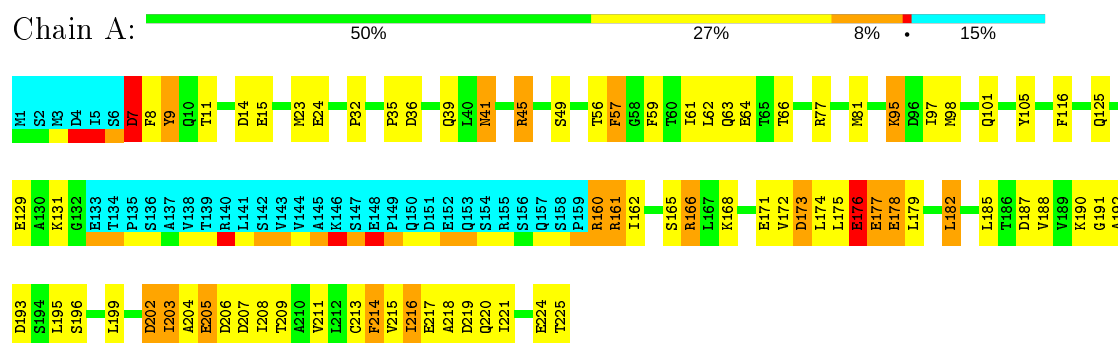


- Molecule 2: Chemotaxis protein CheY

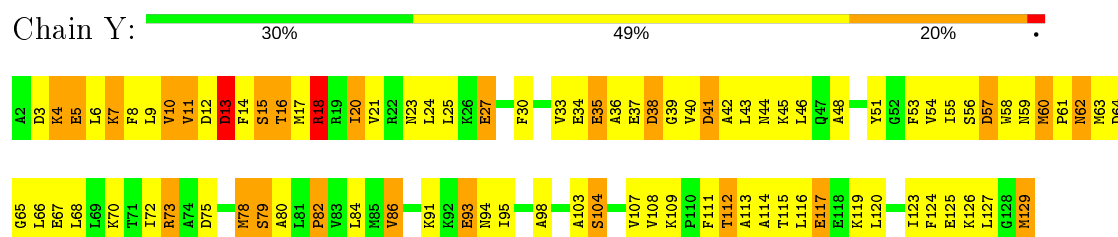


### 4.2.6 Score per residue for model 6

- Molecule 1: Chemotaxis protein CheA



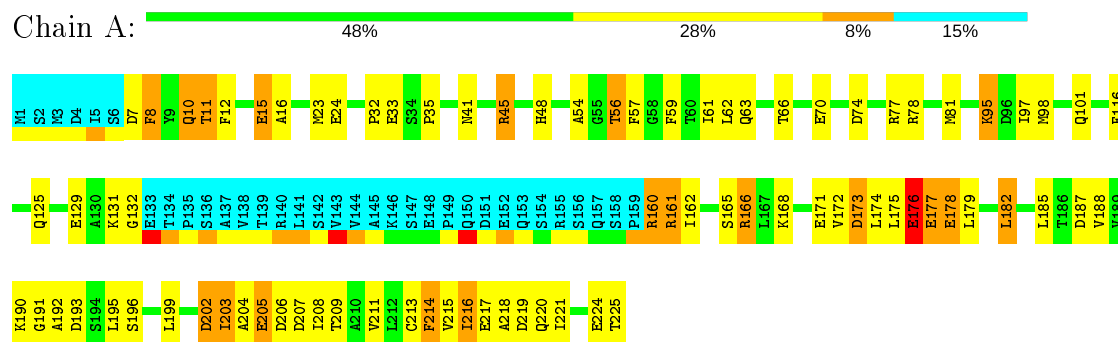
- Molecule 2: Chemotaxis protein CheY



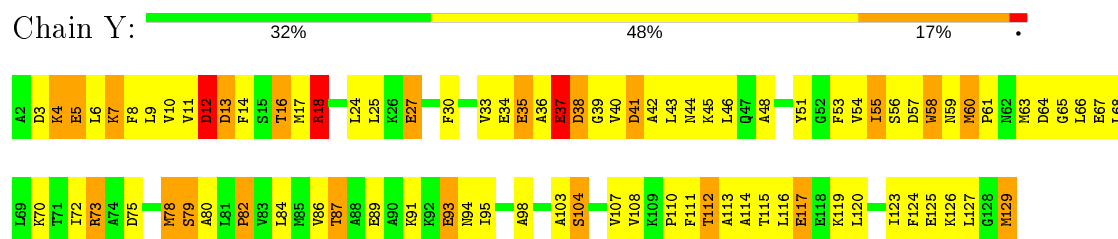


### 4.2.7 Score per residue for model 7

- Molecule 1: Chemotaxis protein CheA

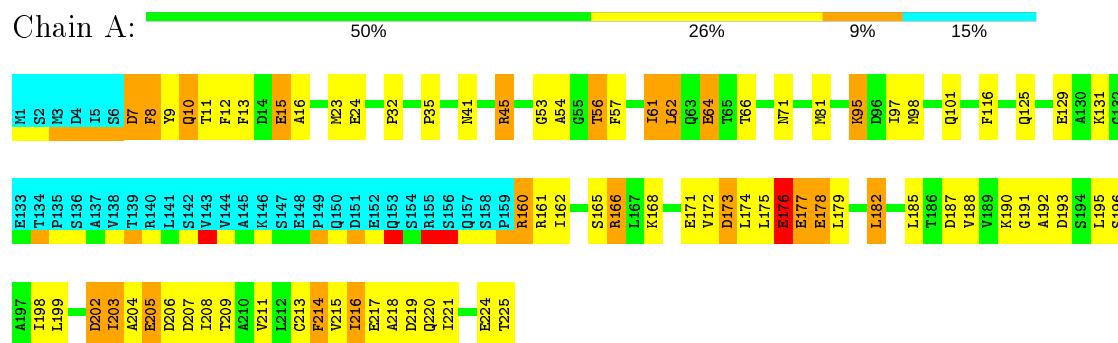


- Molecule 2: Chemotaxis protein CheY

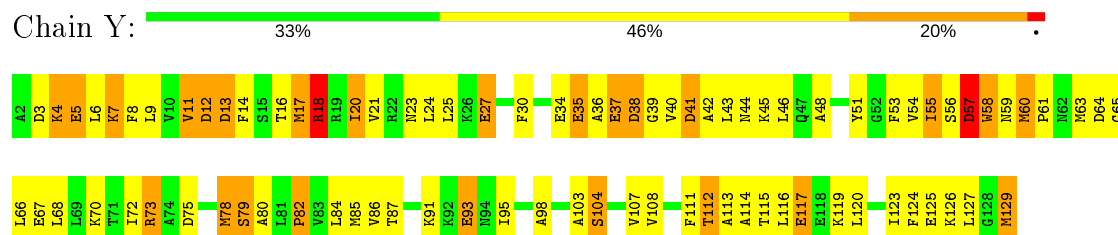


### 4.2.8 Score per residue for model 8

- Molecule 1: Chemotaxis protein CheA

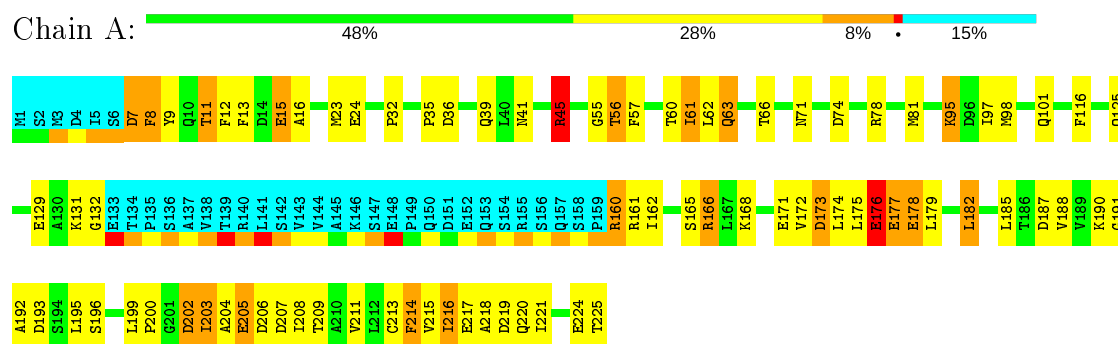


- Molecule 2: Chemotaxis protein CheY

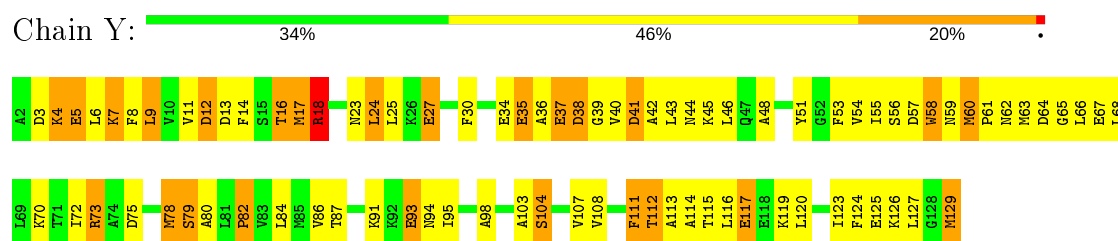


### 4.2.9 Score per residue for model 9

- Molecule 1: Chemotaxis protein CheA

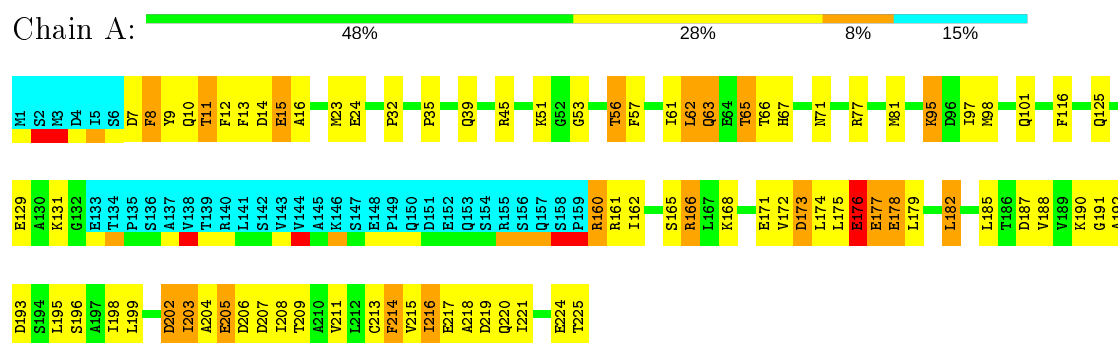


- Molecule 2: Chemotaxis protein CheY

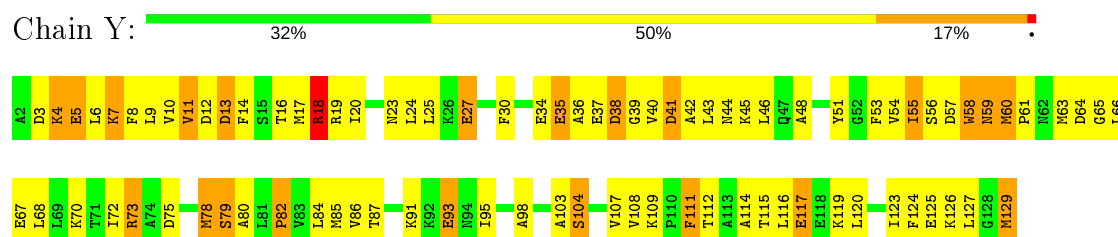


### 4.2.10 Score per residue for model 10

- Molecule 1: Chemotaxis protein CheA

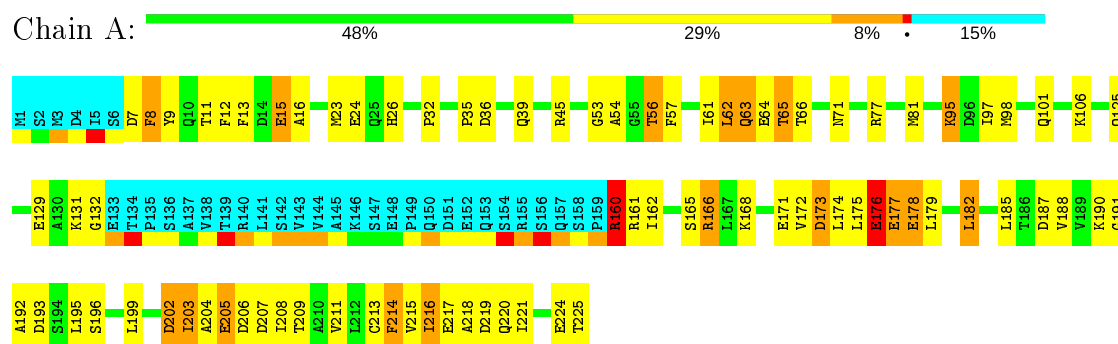


- Molecule 2: Chemotaxis protein CheY

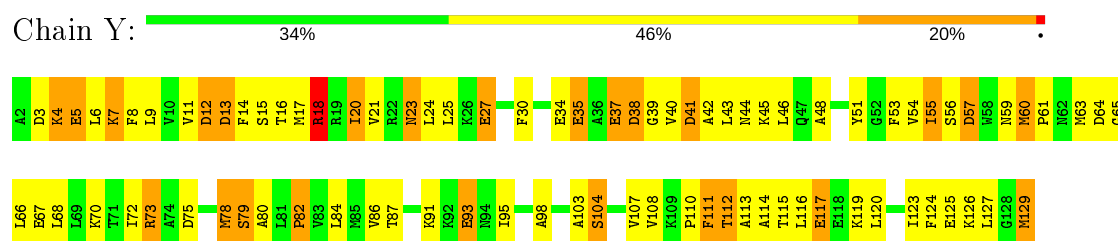


## 4.2.11 Score per residue for model 11

- Molecule 1: Chemotaxis protein CheA

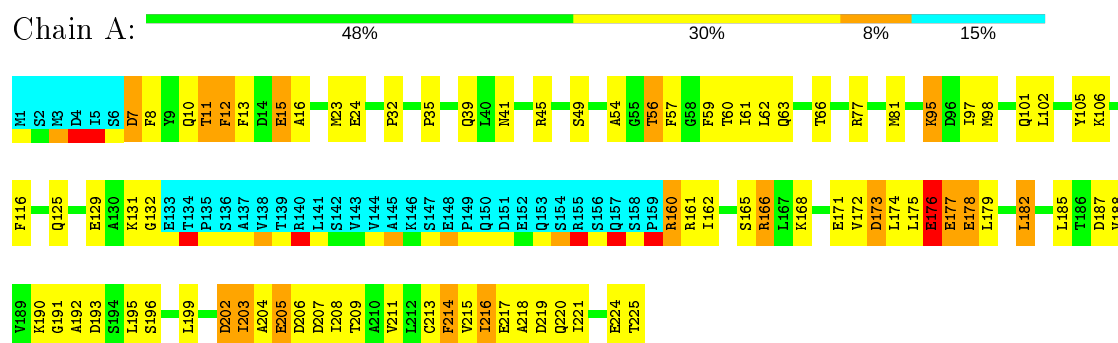


- Molecule 2: Chemotaxis protein CheY

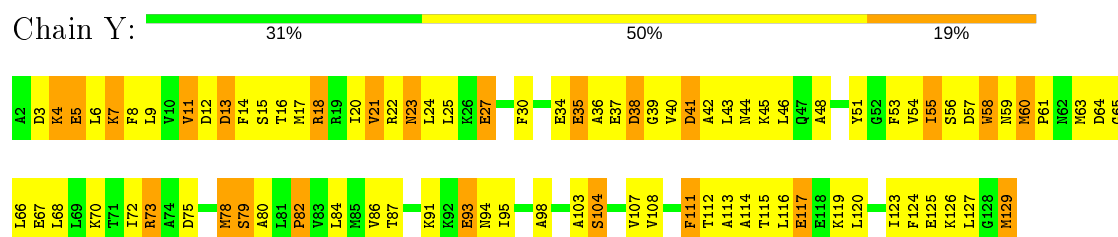


## 4.2.12 Score per residue for model 12

- Molecule 1: Chemotaxis protein CheA

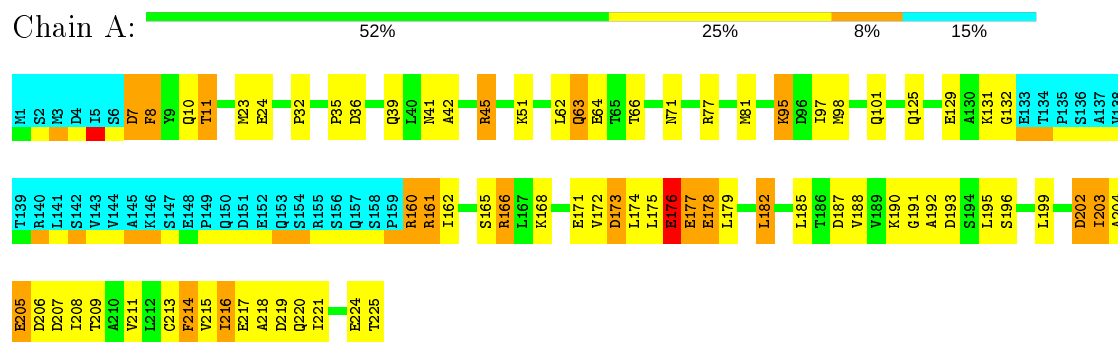


- Molecule 2: Chemotaxis protein CheY

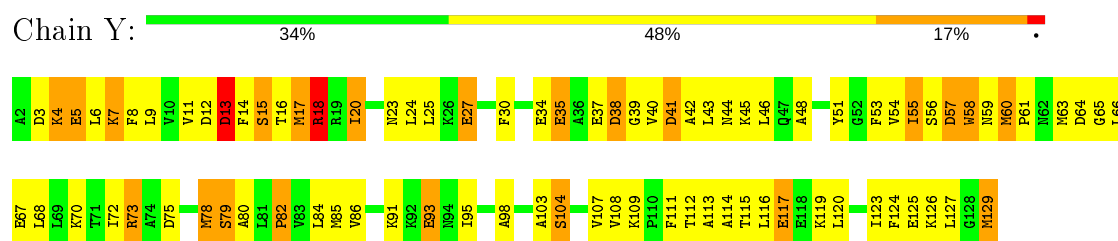


### 4.2.13 Score per residue for model 13

- Molecule 1: Chemotaxis protein CheA

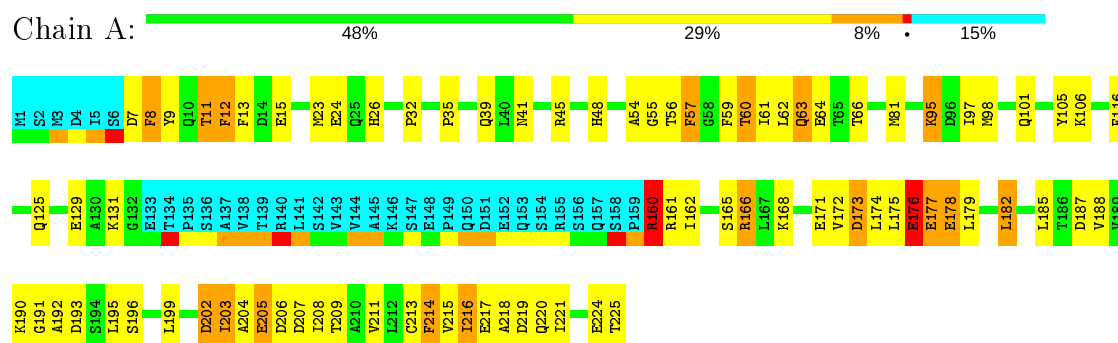


- Molecule 2: Chemotaxis protein CheY

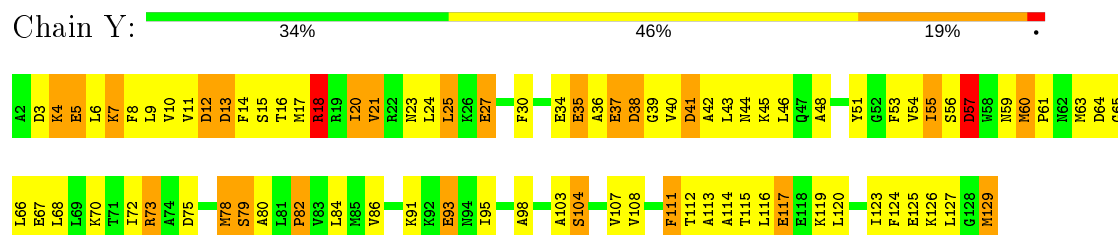


### 4.2.14 Score per residue for model 14

- Molecule 1: Chemotaxis protein CheA

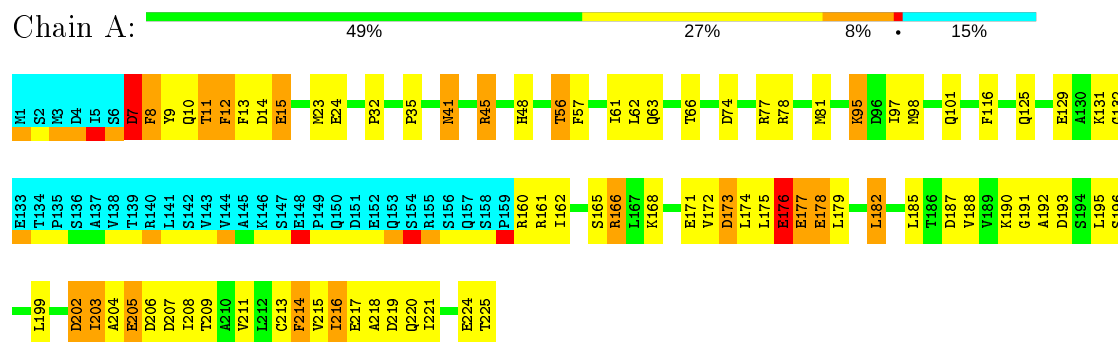


- Molecule 2: Chemotaxis protein CheY

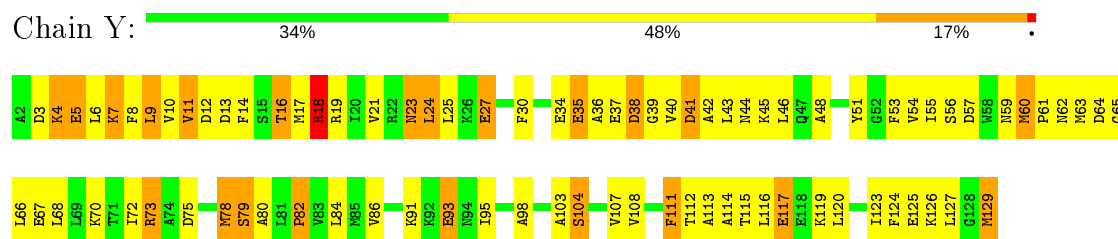


## 4.2.15 Score per residue for model 15

- Molecule 1: Chemotaxis protein CheA

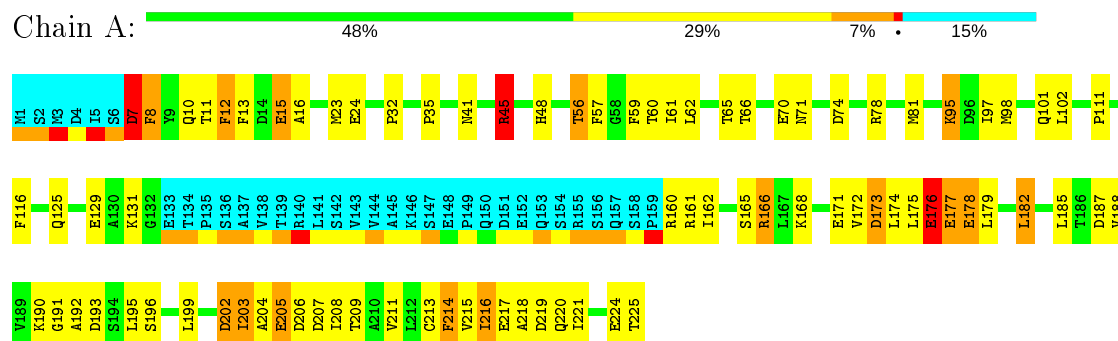


- Molecule 2: Chemotaxis protein CheY

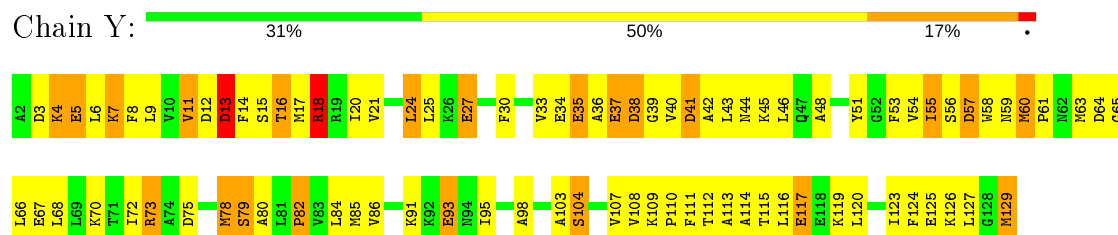


## 4.2.16 Score per residue for model 16

- Molecule 1: Chemotaxis protein CheA

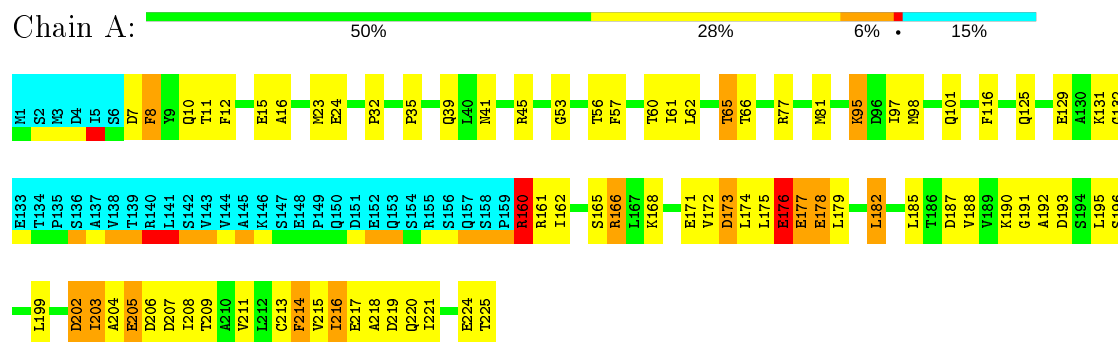


- Molecule 2: Chemotaxis protein CheY

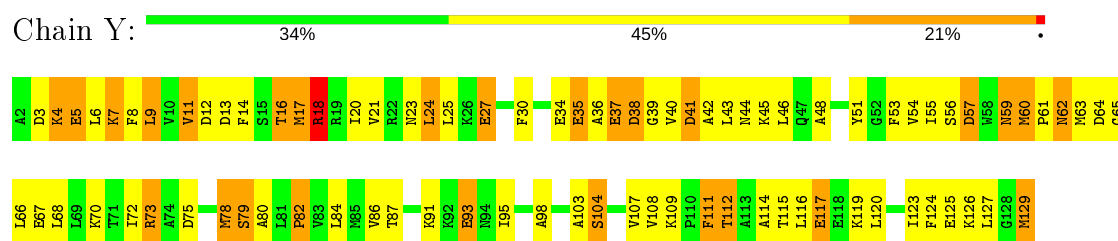


## 4.2.17 Score per residue for model 17

- Molecule 1: Chemotaxis protein CheA

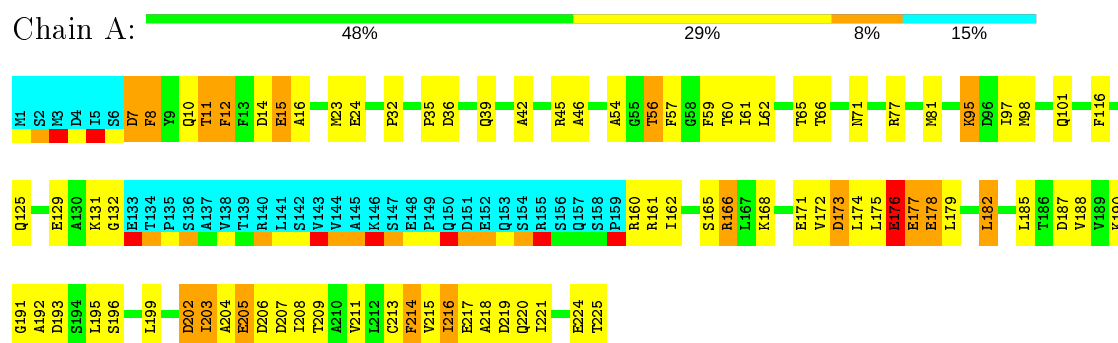


- Molecule 2: Chemotaxis protein CheY

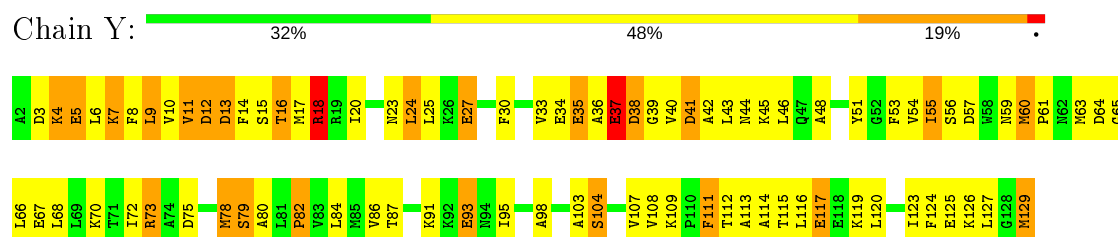


## 4.2.18 Score per residue for model 18

- Molecule 1: Chemotaxis protein CheA

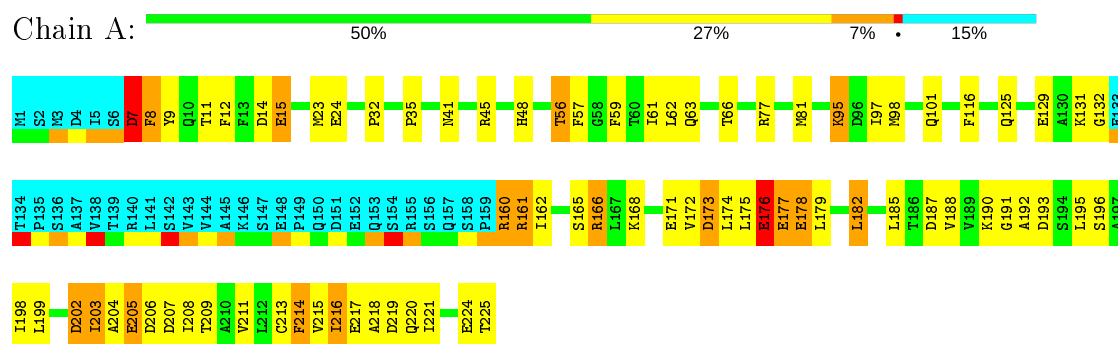


- Molecule 2: Chemotaxis protein CheY

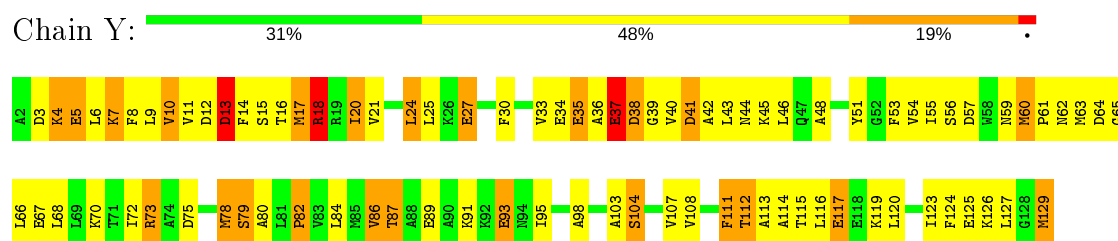


### 4.2.19 Score per residue for model 19

- Molecule 1: Chemotaxis protein CheA

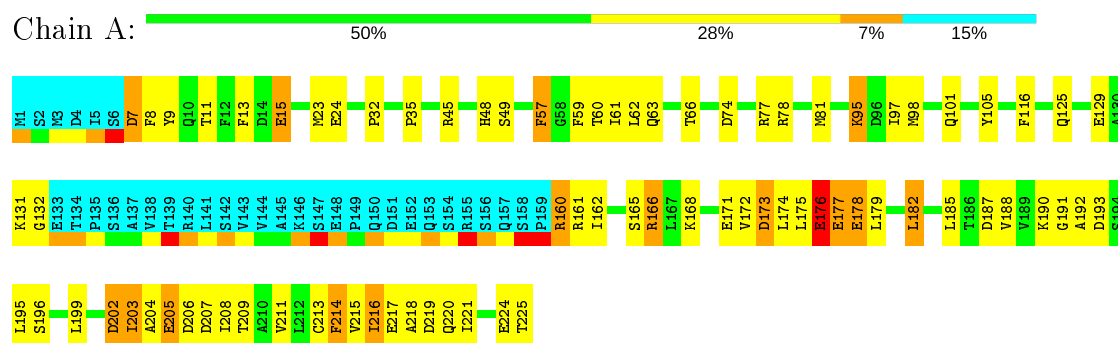


- Molecule 2: Chemotaxis protein CheY

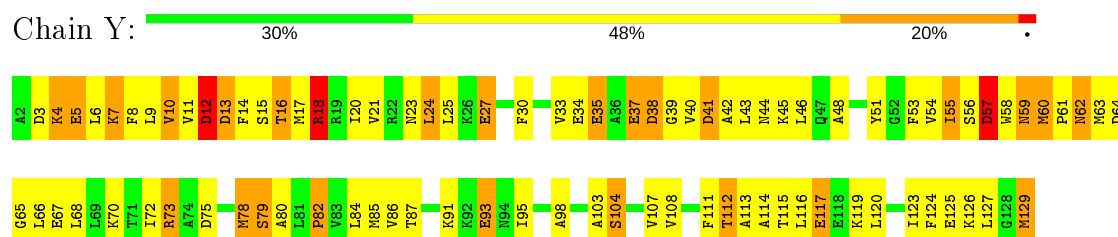


### 4.2.20 Score per residue for model 20

- Molecule 1: Chemotaxis protein CheA

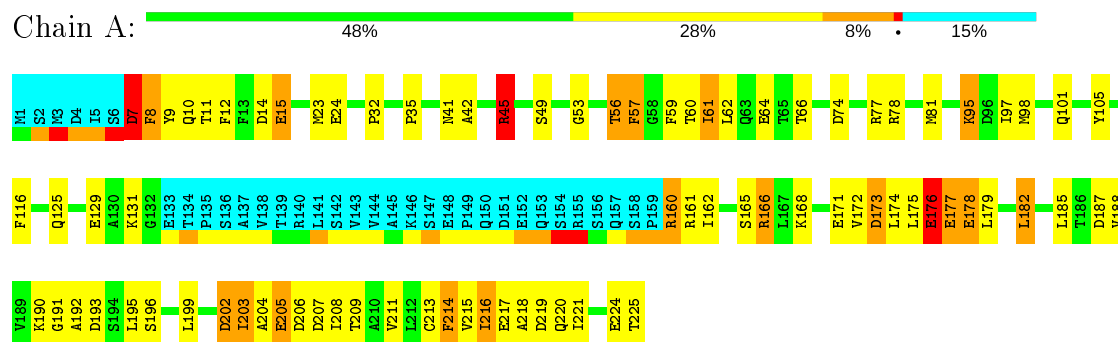


- Molecule 2: Chemotaxis protein CheY

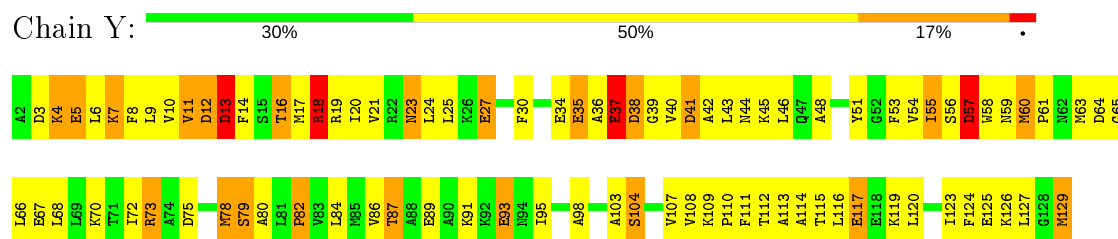


## 4.2.21 Score per residue for model 21

- Molecule 1: Chemotaxis protein CheA

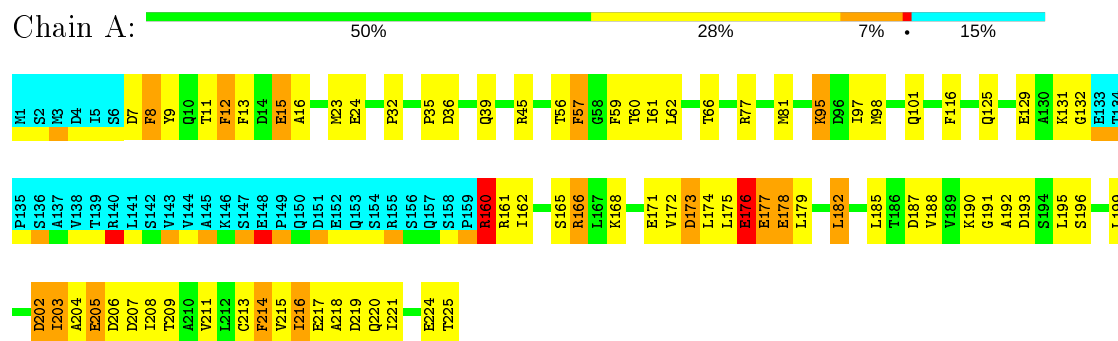


- Molecule 2: Chemotaxis protein CheY

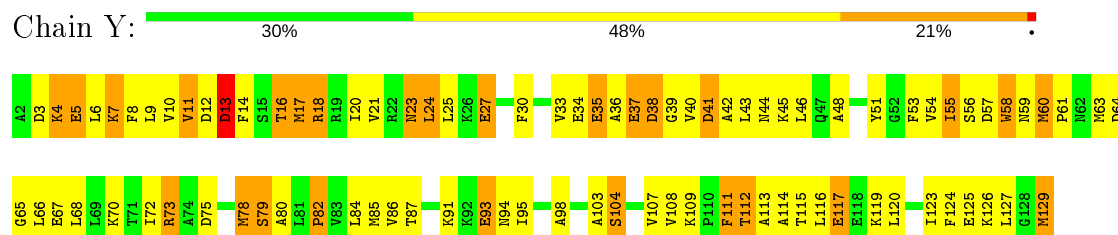


## 4.2.22 Score per residue for model 22

- Molecule 1: Chemotaxis protein CheA



- Molecule 2: Chemotaxis protein CheY

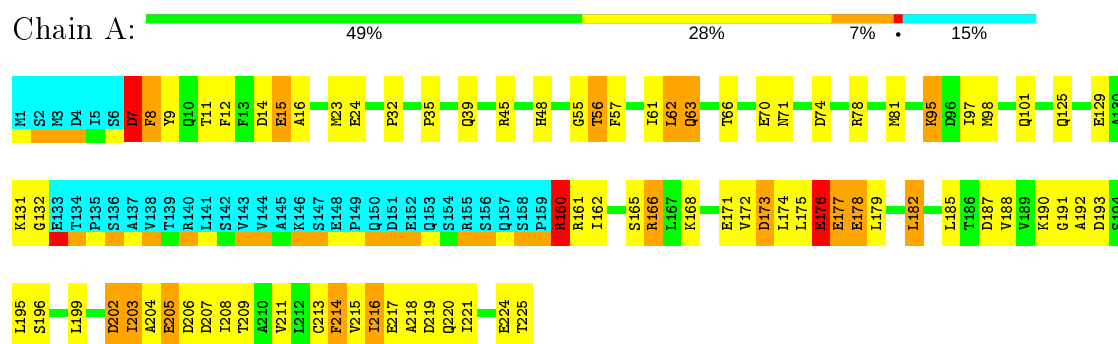




#### 4.2.23 Score per residue for model 23

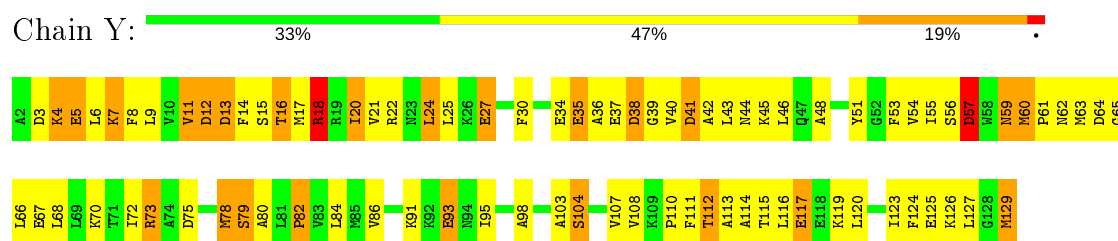
- Molecule 1: Chemotaxis protein CheA

Chain A:



- Molecule 2: Chemotaxis protein CheY

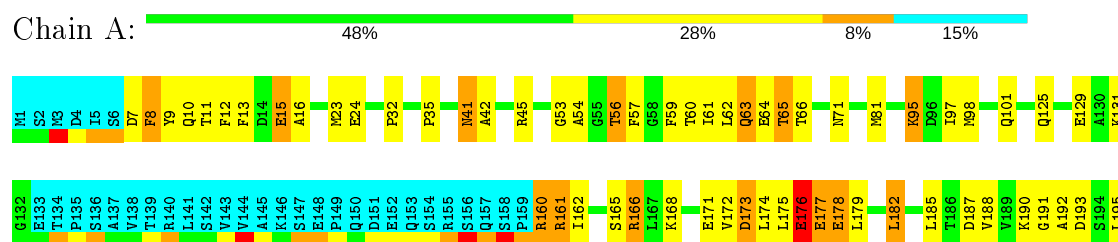
Chain Y:



#### 4.2.24 Score per residue for model 24

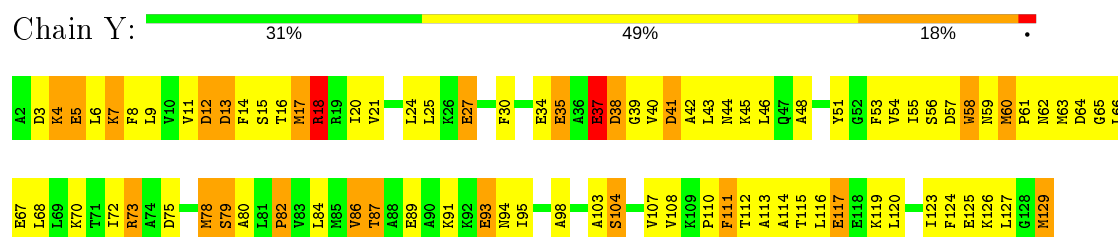
- Molecule 1: Chemotaxis protein CheA

Chain A:



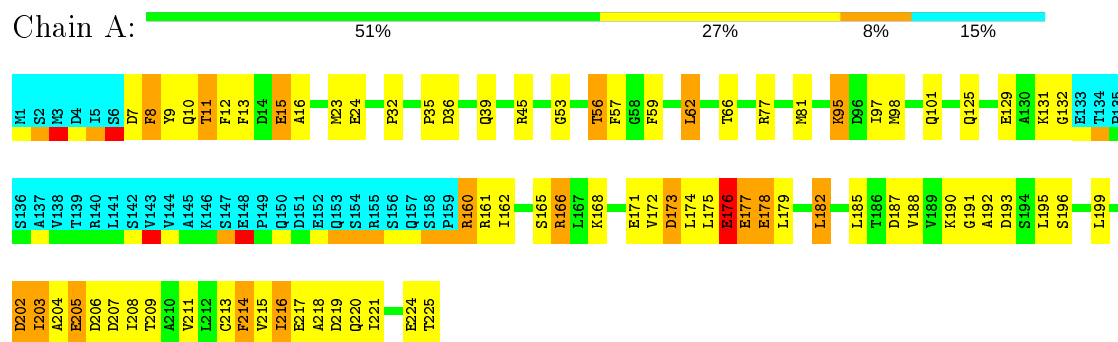
- Molecule 2: Chemotaxis protein CheY

Chain Y:

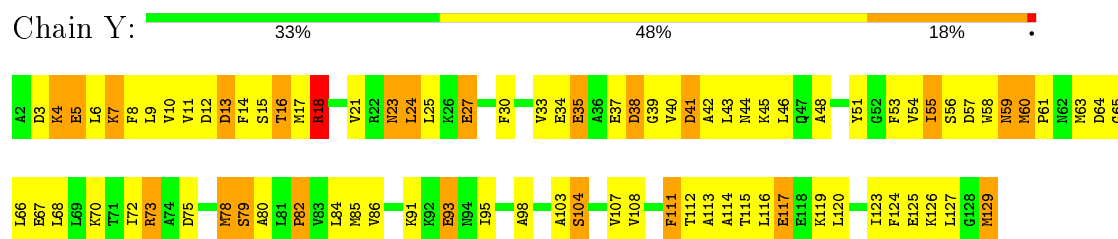


### 4.2.25 Score per residue for model 25

#### • Molecule 1: Chemotaxis protein CheA



#### • Molecule 2: Chemotaxis protein CheY



## 5 Refinement protocol and experimental data overview

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

Of the 200 calculated structures, 25 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
XPLOR-NIH	refinement	

The following table shows chemical shift validation statistics as aggregates over all chemical shift files. Detailed validation can be found in section 6 of this report.

Chemical shift file(s)	input_cs.cif
Number of chemical shift lists	1
Total number of shifts	216
Number of shifts mapped to atoms	216
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	6%

No validations of the models with respect to experimental NMR restraints is performed at this time.

COVALENT-GEOMETRY INFOmissingINFO

### 5.1 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	1497	1452	1448	62±9
2	Y	954	974	957	96±9
All	All	61275	60650	60121	3701

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 30.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:7:ASP:HB3	1:A:8:PHE:CD1	1.59	1.26	6	3
1:A:7:ASP:CB	1:A:8:PHE:CE1	1.51	1.90	6	2
1:A:7:ASP:HB3	1:A:8:PHE:CE1	1.45	1.44	6	3
2:Y:17:MET:O	2:Y:21:VAL:HG22	1.26	1.25	12	2
2:Y:17:MET:O	2:Y:21:VAL:CG2	1.23	1.85	14	3
1:A:57:PHE:O	1:A:57:PHE:CD1	1.23	1.92	14	1
1:A:7:ASP:CB	1:A:8:PHE:CD1	1.23	2.16	6	2
2:Y:21:VAL:O	2:Y:25:LEU:HG	1.15	1.39	16	3
2:Y:17:MET:O	2:Y:21:VAL:HG23	1.14	1.39	14	7
2:Y:11:VAL:O	2:Y:12:ASP:OD1	1.13	1.67	5	1
2:Y:10:VAL:HG23	2:Y:34:GLU:O	1.10	1.44	20	3
1:A:41:ASN:O	1:A:45:ARG:HG2	1.07	1.49	13	2
2:Y:38:ASP:OD2	2:Y:62:ASN:OD1	1.06	1.72	6	2
2:Y:11:VAL:HG23	2:Y:56:SER:HA	1.06	1.20	23	1
2:Y:9:LEU:HD23	2:Y:11:VAL:HG22	1.05	1.10	12	2
2:Y:11:VAL:HG22	2:Y:56:SER:HA	1.04	1.25	11	1
1:A:7:ASP:OD2	1:A:10:GLN:NE2	1.04	1.90	25	1
2:Y:14:PHE:O	2:Y:18:ARG:HG3	1.03	1.53	22	8
1:A:7:ASP:HB2	1:A:8:PHE:CE1	1.02	1.88	6	2
2:Y:24:LEU:HD21	2:Y:113:ALA:CB	1.01	1.84	7	3
2:Y:17:MET:HG3	2:Y:18:ARG:N	1.01	1.61	24	1
1:A:7:ASP:O	1:A:7:ASP:OD1	1.00	1.78	10	2
1:A:12:PHE:O	1:A:15:GLU:HG3	1.00	1.56	17	1
2:Y:24:LEU:HD21	2:Y:113:ALA:CA	0.99	1.87	7	1
2:Y:61:PRO:O	2:Y:62:ASN:ND2	0.98	1.96	6	2
2:Y:11:VAL:CG2	2:Y:56:SER:HA	0.97	1.89	11	2
2:Y:10:VAL:CG2	2:Y:34:GLU:O	0.97	2.11	19	2
2:Y:24:LEU:HD21	2:Y:113:ALA:HB2	0.97	1.32	7	5
1:A:65:THR:HG21	1:A:101:GLN:HE22	0.97	1.18	18	5
1:A:7:ASP:OD2	1:A:8:PHE:HE1	0.97	1.43	6	2
2:Y:24:LEU:HD11	2:Y:113:ALA:HA	0.97	1.32	7	1
2:Y:20:ILE:O	2:Y:24:LEU:HG	0.96	1.61	4	9
2:Y:9:LEU:HD12	2:Y:51:TYR:CE1	0.96	1.96	15	2
2:Y:9:LEU:CD2	2:Y:11:VAL:HG22	0.95	1.92	15	3
1:A:7:ASP:CG	1:A:8:PHE:CE1	0.95	2.41	6	1
2:Y:9:LEU:HD23	2:Y:11:VAL:CG2	0.94	1.91	12	2
1:A:8:PHE:CE1	1:A:57:PHE:CD1	0.94	2.55	2	3
2:Y:18:ARG:O	2:Y:21:VAL:HG23	0.94	1.62	12	1
1:A:77:ARG:HH12	2:Y:61:PRO:HB3	0.94	1.20	13	15
2:Y:18:ARG:O	2:Y:21:VAL:HG12	0.93	1.62	3	3
2:Y:20:ILE:HG12	2:Y:24:LEU:HD21	0.93	1.40	4	1
2:Y:18:ARG:NH2	2:Y:37:GLU:OE2	0.93	2.02	11	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:59:ASN:OD1	2:Y:59:ASN:N	0.93	2.01	25	3
1:A:11:THR:HG22	2:Y:16:THR:OG1	0.92	1.65	17	8
1:A:59:PHE:O	1:A:63:GLN:HG3	0.92	1.64	14	1
1:A:7:ASP:OD2	1:A:8:PHE:CE1	0.91	2.23	6	2
2:Y:11:VAL:HG12	2:Y:60:MET:SD	0.91	2.05	19	6
1:A:57:PHE:CE1	1:A:59:PHE:CD1	0.91	2.59	14	1
2:Y:21:VAL:HA	2:Y:24:LEU:HD11	0.90	1.38	17	1
2:Y:14:PHE:O	2:Y:18:ARG:CG	0.90	2.20	2	2
1:A:57:PHE:CE1	1:A:59:PHE:CE1	0.90	2.60	14	1
1:A:41:ASN:O	1:A:45:ARG:CG	0.90	2.19	13	2
1:A:57:PHE:C	1:A:57:PHE:CD1	0.90	2.45	14	1
1:A:11:THR:OG1	2:Y:16:THR:HG22	0.89	1.66	21	1
1:A:59:PHE:CD1	1:A:105:TYR:CD1	0.88	2.61	14	5
2:Y:10:VAL:HG21	2:Y:33:VAL:CG1	0.88	1.99	6	8
1:A:57:PHE:CZ	1:A:59:PHE:CE1	0.88	2.61	14	1
2:Y:9:LEU:HD12	2:Y:51:TYR:CZ	0.87	2.04	15	2
1:A:56:THR:HG23	1:A:57:PHE:CD1	0.87	2.04	2	2
1:A:59:PHE:O	1:A:63:GLN:CG	0.86	2.23	14	2
1:A:53:GLY:O	1:A:57:PHE:CD2	0.86	2.28	21	5
2:Y:13:ASP:OD1	2:Y:60:MET:HG2	0.85	1.71	1	1
2:Y:54:VAL:HG12	2:Y:56:SER:HB2	0.85	1.48	1	25
2:Y:9:LEU:HD13	2:Y:51:TYR:CE1	0.85	2.07	11	14
2:Y:20:ILE:HG22	2:Y:24:LEU:HD12	0.84	1.47	18	1
2:Y:10:VAL:HG22	2:Y:34:GLU:O	0.84	1.72	19	1
2:Y:11:VAL:HG13	2:Y:60:MET:SD	0.84	2.12	21	2
1:A:166:ARG:NH2	1:A:220:GLN:HA	0.83	1.88	1	25
1:A:59:PHE:CE1	1:A:105:TYR:CD1	0.83	2.66	14	4
1:A:56:THR:HG22	1:A:57:PHE:CD1	0.83	2.08	21	6
1:A:12:PHE:HA	1:A:15:GLU:OE1	0.83	1.74	18	14
2:Y:9:LEU:HG	2:Y:11:VAL:HG22	0.83	1.51	8	12
2:Y:24:LEU:CD2	2:Y:113:ALA:HB2	0.82	2.02	7	8
2:Y:25:LEU:CD2	2:Y:116:LEU:HD21	0.82	2.05	4	10
1:A:8:PHE:HB2	1:A:57:PHE:HZ	0.81	1.32	4	1
2:Y:21:VAL:O	2:Y:25:LEU:CG	0.81	2.26	16	1
1:A:54:ALA:O	1:A:63:GLN:NE2	0.81	2.12	24	1
1:A:8:PHE:CD1	1:A:8:PHE:N	0.81	2.46	9	12
1:A:175:LEU:HD11	1:A:216:ILE:HD13	0.81	1.53	1	25
1:A:42:ALA:HA	1:A:45:ARG:HD2	0.80	1.53	13	1
1:A:9:TYR:CE1	1:A:57:PHE:CD2	0.80	2.68	14	3
1:A:8:PHE:N	1:A:8:PHE:CD1	0.80	2.49	22	8
2:Y:9:LEU:CG	2:Y:11:VAL:HG22	0.80	2.07	17	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:18:ARG:NH1	2:Y:35:GLU:OE1	0.80	2.14	13	3
1:A:8:PHE:CE1	1:A:57:PHE:CE1	0.80	2.70	2	2
1:A:7:ASP:O	1:A:7:ASP:CG	0.79	2.21	16	2
1:A:9:TYR:CE1	1:A:59:PHE:CZ	0.79	2.70	6	5
1:A:12:PHE:O	1:A:15:GLU:OE1	0.79	2.00	3	2
1:A:56:THR:CG2	1:A:57:PHE:CD1	0.79	2.65	21	7
1:A:9:TYR:CE1	1:A:57:PHE:CG	0.79	2.71	6	3
2:Y:18:ARG:O	2:Y:21:VAL:CG1	0.79	2.31	25	2
1:A:15:GLU:HG2	2:Y:16:THR:HG23	0.78	1.52	1	2
1:A:9:TYR:CZ	1:A:59:PHE:CZ	0.78	2.72	6	1
2:Y:11:VAL:HG23	2:Y:56:SER:CA	0.78	2.06	23	1
2:Y:24:LEU:CD1	2:Y:113:ALA:HA	0.78	2.07	7	1
2:Y:23:ASN:OD1	2:Y:23:ASN:C	0.78	2.22	4	1
2:Y:58:TRP:CZ3	2:Y:87:THR:HB	0.78	2.14	22	1
2:Y:112:THR:OG1	2:Y:114:ALA:N	0.77	2.17	10	4
1:A:12:PHE:CD1	1:A:15:GLU:OE1	0.77	2.37	3	5
1:A:12:PHE:CE1	1:A:53:GLY:HA3	0.77	2.15	8	6
2:Y:11:VAL:HG22	2:Y:56:SER:CA	0.76	2.10	11	1
1:A:9:TYR:CZ	1:A:57:PHE:CD1	0.76	2.73	6	2
2:Y:59:ASN:O	2:Y:60:MET:HG3	0.76	1.81	1	25
2:Y:24:LEU:HD23	2:Y:24:LEU:N	0.75	1.96	13	2
1:A:11:THR:O	2:Y:16:THR:HG21	0.75	1.82	21	2
2:Y:11:VAL:CG1	2:Y:60:MET:SD	0.75	2.73	19	3
1:A:63:GLN:NE2	1:A:63:GLN:O	0.75	2.20	10	1
1:A:45:ARG:HD3	2:Y:61:PRO:CG	0.75	2.11	15	1
2:Y:9:LEU:HD22	2:Y:51:TYR:CZ	0.75	2.17	5	3
1:A:57:PHE:CZ	1:A:59:PHE:CZ	0.75	2.75	14	1
1:A:57:PHE:O	1:A:57:PHE:HD1	0.75	1.65	6	1
2:Y:84:LEU:HD13	2:Y:123:ILE:HD11	0.75	1.59	1	25
1:A:8:PHE:HB2	1:A:57:PHE:CZ	0.75	2.17	4	3
2:Y:54:VAL:CG1	2:Y:56:SER:HB2	0.74	2.12	1	25
2:Y:25:LEU:HD22	2:Y:30:PHE:CD1	0.74	2.17	19	4
1:A:77:ARG:NH1	2:Y:61:PRO:HB3	0.74	1.95	20	9
1:A:59:PHE:CE1	1:A:105:TYR:CG	0.74	2.76	14	2
1:A:9:TYR:CZ	1:A:57:PHE:CE1	0.74	2.76	6	2
2:Y:55:ILE:CG2	2:Y:86:VAL:CG2	0.74	2.65	22	15
1:A:15:GLU:OE2	1:A:16:ALA:HB2	0.74	1.83	16	9
2:Y:14:PHE:CZ	2:Y:16:THR:HB	0.74	2.18	3	20
1:A:15:GLU:OE2	2:Y:14:PHE:CZ	0.74	2.41	5	2
1:A:59:PHE:CD1	1:A:105:TYR:CE1	0.74	2.76	14	4
1:A:42:ALA:HA	1:A:45:ARG:CD	0.73	2.13	13	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:7:ASP:CB	1:A:8:PHE:CZ	0.73	2.67	6	1
2:Y:11:VAL:HG13	2:Y:36:ALA:HB3	0.73	1.59	15	14
1:A:59:PHE:O	1:A:63:GLN:HG2	0.73	1.83	24	2
2:Y:9:LEU:HD11	2:Y:11:VAL:HG13	0.73	1.60	17	1
2:Y:20:ILE:HG22	2:Y:23:ASN:OD1	0.73	1.83	14	1
2:Y:25:LEU:HD23	2:Y:116:LEU:CD2	0.73	2.13	4	3
1:A:62:LEU:HD12	1:A:66:THR:HG23	0.73	1.59	5	3
1:A:10:GLN:HG3	1:A:11:THR:N	0.73	1.98	8	1
2:Y:11:VAL:HG23	2:Y:36:ALA:HB3	0.72	1.60	1	2
2:Y:55:ILE:HG23	2:Y:86:VAL:CG2	0.72	2.14	18	15
2:Y:25:LEU:HB3	2:Y:30:PHE:HB2	0.72	1.61	5	23
2:Y:58:TRP:CZ3	2:Y:85:MET:CB	0.72	2.71	22	4
1:A:56:THR:CG2	1:A:57:PHE:CE1	0.72	2.73	3	7
1:A:60:THR:HA	1:A:63:GLN:OE1	0.72	1.84	24	1
1:A:11:THR:CG2	2:Y:16:THR:HG23	0.72	2.14	14	8
2:Y:25:LEU:CD2	2:Y:116:LEU:CD2	0.72	2.67	4	3
2:Y:12:ASP:OD1	2:Y:57:ASP:CB	0.72	2.38	5	1
2:Y:10:VAL:HG21	2:Y:33:VAL:HG12	0.72	1.62	20	3
2:Y:20:ILE:O	2:Y:24:LEU:CG	0.72	2.37	17	2
1:A:57:PHE:CG	1:A:57:PHE:O	0.72	2.43	14	1
2:Y:17:MET:O	2:Y:21:VAL:HG12	0.72	1.84	25	1
2:Y:20:ILE:HA	2:Y:23:ASN:OD1	0.71	1.85	2	3
1:A:7:ASP:HB3	1:A:8:PHE:CG	0.71	2.14	6	1
2:Y:61:PRO:O	2:Y:62:ASN:CG	0.71	2.28	20	2
1:A:59:PHE:HD1	1:A:105:TYR:CE1	0.71	2.02	14	1
1:A:166:ARG:NH1	1:A:220:GLN:HG3	0.71	2.01	1	25
2:Y:11:VAL:HG12	2:Y:36:ALA:HB3	0.71	1.61	23	1
2:Y:18:ARG:O	2:Y:21:VAL:CG2	0.71	2.38	12	1
1:A:8:PHE:CD1	1:A:57:PHE:CE1	0.71	2.79	2	2
1:A:7:ASP:HB2	1:A:8:PHE:CZ	0.71	2.18	6	1
2:Y:11:VAL:CG2	2:Y:56:SER:CA	0.71	2.68	11	2
1:A:9:TYR:CE1	1:A:57:PHE:CD1	0.71	2.79	19	2
2:Y:20:ILE:HG23	2:Y:23:ASN:HD21	0.70	1.45	5	1
1:A:11:THR:HG22	2:Y:16:THR:CG2	0.70	2.16	23	3
1:A:9:TYR:CZ	1:A:57:PHE:CE2	0.70	2.79	14	1
1:A:7:ASP:N	1:A:7:ASP:OD1	0.70	2.24	19	1
2:Y:25:LEU:HD13	2:Y:30:PHE:CB	0.70	2.17	14	1
2:Y:111:PHE:CE2	2:Y:116:LEU:HD13	0.70	2.22	25	3
1:A:56:THR:HG22	1:A:57:PHE:CG	0.70	2.21	21	12
2:Y:111:PHE:CZ	2:Y:116:LEU:HD22	0.70	2.22	14	2
2:Y:111:PHE:CD1	2:Y:116:LEU:HB2	0.70	2.22	7	16

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:8:PHE:CZ	1:A:57:PHE:CD1	0.70	2.80	2	1
2:Y:10:VAL:CG2	2:Y:33:VAL:CG1	0.70	2.69	6	8
1:A:15:GLU:OE2	1:A:16:ALA:N	0.69	2.25	9	6
1:A:8:PHE:HB3	2:Y:20:ILE:HD13	0.69	1.64	14	1
2:Y:9:LEU:HG	2:Y:11:VAL:HG23	0.69	1.63	19	1
2:Y:20:ILE:O	2:Y:24:LEU:CD2	0.69	2.41	17	2
1:A:215:VAL:HG12	1:A:216:ILE:HD12	0.69	1.62	1	25
2:Y:9:LEU:HD22	2:Y:51:TYR:CE1	0.69	2.23	5	3
2:Y:14:PHE:CE1	2:Y:16:THR:HB	0.69	2.23	13	14
1:A:9:TYR:CE1	1:A:59:PHE:CE2	0.69	2.81	6	2
1:A:8:PHE:CE2	2:Y:110:PRO:CG	0.68	2.76	3	1
1:A:77:ARG:HH12	2:Y:61:PRO:CB	0.68	2.01	20	2
2:Y:20:ILE:HA	2:Y:23:ASN:CG	0.68	2.09	8	3
2:Y:9:LEU:CD1	2:Y:51:TYR:CE1	0.68	2.76	12	2
2:Y:40:VAL:H	2:Y:62:ASN:ND2	0.68	1.85	20	2
2:Y:55:ILE:CG2	2:Y:86:VAL:HG21	0.68	2.19	22	12
2:Y:73:ARG:HD3	2:Y:79:SER:O	0.68	1.88	1	25
1:A:57:PHE:CD1	1:A:59:PHE:CD2	0.68	2.81	14	1
1:A:9:TYR:CE2	1:A:57:PHE:CZ	0.68	2.81	6	1
1:A:162:ILE:HB	1:A:199:LEU:HD22	0.68	1.65	1	25
2:Y:9:LEU:HD13	2:Y:51:TYR:CZ	0.68	2.23	2	10
2:Y:58:TRP:CH2	2:Y:85:MET:HB2	0.68	2.24	22	1
2:Y:11:VAL:HG12	2:Y:56:SER:HA	0.67	1.64	1	1
1:A:8:PHE:HB2	2:Y:20:ILE:HD12	0.67	1.66	3	2
2:Y:25:LEU:HD22	2:Y:30:PHE:CG	0.67	2.25	19	1
1:A:42:ALA:HA	1:A:45:ARG:HD3	0.67	1.67	4	1
2:Y:124:PHE:HD1	2:Y:129:MET:HE2	0.67	1.50	1	25
2:Y:21:VAL:HG12	2:Y:25:LEU:HD11	0.67	1.67	20	1
2:Y:72:ILE:HA	2:Y:78:MET:HE3	0.67	1.66	1	25
2:Y:57:ASP:OD2	2:Y:59:ASN:O	0.67	2.13	8	4
1:A:11:THR:OG1	2:Y:16:THR:CG2	0.66	2.43	8	3
1:A:77:ARG:HH22	2:Y:61:PRO:HB3	0.66	1.49	19	5
1:A:9:TYR:OH	1:A:59:PHE:CE1	0.66	2.48	6	1
2:Y:40:VAL:O	2:Y:44:ASN:N	0.66	2.28	1	25
2:Y:24:LEU:HD12	2:Y:111:PHE:CE1	0.66	2.26	23	1
1:A:62:LEU:HD12	1:A:66:THR:CG2	0.66	2.21	5	4
1:A:60:THR:HA	1:A:63:GLN:CG	0.65	2.21	24	1
2:Y:126:LYS:HG3	2:Y:126:LYS:O	0.65	1.91	1	10
2:Y:126:LYS:O	2:Y:126:LYS:HG3	0.65	1.91	2	15
1:A:11:THR:HG23	2:Y:16:THR:CG2	0.65	2.21	16	8
2:Y:25:LEU:HD22	2:Y:30:PHE:HB2	0.65	1.69	19	4

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:8:PHE:CB	2:Y:20:ILE:CD1	0.65	2.75	3	2
2:Y:20:ILE:HA	2:Y:23:ASN:ND2	0.65	2.07	8	6
1:A:51:LYS:HG3	1:A:63:GLN:HE21	0.65	1.50	10	1
2:Y:13:ASP:HA	2:Y:37:GLU:HG2	0.64	1.68	1	2
1:A:60:THR:HA	1:A:63:GLN:CD	0.64	2.12	24	1
2:Y:14:PHE:CZ	2:Y:16:THR:OG1	0.64	2.50	1	2
2:Y:10:VAL:CG2	2:Y:33:VAL:HG13	0.64	2.22	2	7
1:A:11:THR:CG2	2:Y:16:THR:CG2	0.64	2.74	9	8
1:A:41:ASN:O	1:A:45:ARG:CD	0.64	2.45	4	2
2:Y:91:LYS:O	2:Y:95:ILE:HG13	0.64	1.92	1	25
1:A:11:THR:HG23	2:Y:16:THR:HG21	0.64	1.69	3	6
2:Y:9:LEU:CD1	2:Y:51:TYR:CZ	0.64	2.81	12	2
1:A:60:THR:O	1:A:63:GLN:CG	0.64	2.46	24	1
1:A:59:PHE:CZ	1:A:105:TYR:HB3	0.64	2.27	6	1
2:Y:9:LEU:HB2	2:Y:51:TYR:CD1	0.64	2.28	14	24
1:A:11:THR:HB	2:Y:16:THR:CG2	0.63	2.23	10	4
2:Y:38:ASP:O	2:Y:42:ALA:N	0.63	2.30	1	25
2:Y:9:LEU:HD11	2:Y:36:ALA:HB2	0.63	1.69	8	6
1:A:9:TYR:CD1	1:A:57:PHE:CD2	0.63	2.86	6	3
2:Y:14:PHE:CD2	2:Y:17:MET:HB2	0.63	2.27	11	9
1:A:54:ALA:HB2	1:A:62:LEU:HD23	0.63	1.70	12	3
1:A:77:ARG:NH2	2:Y:61:PRO:HB3	0.63	2.08	19	3
1:A:9:TYR:CE1	1:A:57:PHE:HD2	0.63	2.06	14	1
1:A:51:LYS:HG3	1:A:63:GLN:NE2	0.63	2.09	10	1
2:Y:24:LEU:CD2	2:Y:113:ALA:CB	0.63	2.76	20	6
2:Y:14:PHE:CZ	2:Y:16:THR:HG22	0.62	2.29	5	3
1:A:9:TYR:CE2	1:A:57:PHE:CE1	0.62	2.87	6	2
1:A:57:PHE:CD1	1:A:57:PHE:O	0.62	2.51	6	1
2:Y:25:LEU:HD12	2:Y:33:VAL:HG21	0.62	1.70	16	2
2:Y:12:ASP:OD1	2:Y:57:ASP:HB2	0.62	1.93	5	2
1:A:61:ILE:O	1:A:65:THR:OG1	0.62	2.18	11	2
2:Y:42:ALA:O	2:Y:46:LEU:N	0.62	2.31	1	25
1:A:8:PHE:CE1	1:A:57:PHE:HD1	0.62	2.11	21	2
2:Y:20:ILE:CG2	2:Y:23:ASN:OD1	0.62	2.48	14	1
2:Y:14:PHE:O	2:Y:18:ARG:HG2	0.62	1.95	2	1
1:A:42:ALA:HA	1:A:45:ARG:CG	0.62	2.24	4	3
1:A:65:THR:HG22	1:A:66:THR:N	0.62	2.08	10	2
1:A:57:PHE:CD1	1:A:59:PHE:CG	0.62	2.88	14	1
1:A:42:ALA:HA	1:A:45:ARG:HG2	0.62	1.71	21	2
2:Y:37:GLU:OE1	2:Y:41:ASP:CB	0.62	2.48	18	1
2:Y:53:PHE:CE1	2:Y:84:LEU:HB2	0.62	2.29	1	25

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:58:TRP:CZ3	2:Y:85:MET:HB2	0.62	2.30	22	2
2:Y:112:THR:HG22	2:Y:113:ALA:N	0.61	2.11	14	7
1:A:8:PHE:CD2	2:Y:110:PRO:HB2	0.61	2.29	7	4
1:A:62:LEU:HD22	1:A:101:GLN:HB2	0.61	1.70	5	1
1:A:12:PHE:CE1	1:A:15:GLU:OE2	0.61	2.54	8	2
2:Y:13:ASP:N	2:Y:13:ASP:OD1	0.61	2.34	5	2
2:Y:24:LEU:HD11	2:Y:112:THR:C	0.61	2.16	20	3
2:Y:15:SER:HA	2:Y:18:ARG:NH1	0.61	2.10	13	1
2:Y:25:LEU:HD22	2:Y:116:LEU:CD2	0.61	2.25	17	1
1:A:45:ARG:HD3	2:Y:37:GLU:OE2	0.61	1.96	24	1
2:Y:58:TRP:CZ3	2:Y:85:MET:HB3	0.60	2.31	22	2
1:A:45:ARG:NH1	2:Y:37:GLU:OE1	0.60	2.34	9	3
1:A:15:GLU:HG2	1:A:16:ALA:N	0.60	2.11	8	7
1:A:15:GLU:HG3	2:Y:14:PHE:CE1	0.60	2.31	4	8
1:A:173:ASP:OD1	1:A:190:LYS:NZ	0.60	2.29	1	25
2:Y:25:LEU:O	2:Y:30:PHE:N	0.60	2.33	1	25
2:Y:57:ASP:OD1	2:Y:58:TRP:N	0.60	2.34	1	1
1:A:26:HIS:ND1	1:A:39:GLN:OE1	0.60	2.34	11	3
2:Y:10:VAL:CG1	2:Y:18:ARG:HG2	0.60	2.27	1	2
2:Y:15:SER:HA	2:Y:18:ARG:HG3	0.60	1.74	2	1
2:Y:24:LEU:CD2	2:Y:113:ALA:CA	0.60	2.75	7	3
2:Y:15:SER:HA	2:Y:18:ARG:CZ	0.60	2.27	13	2
2:Y:18:ARG:CZ	2:Y:35:GLU:HB3	0.60	2.27	10	3
1:A:42:ALA:O	1:A:45:ARG:HG3	0.60	1.97	21	1
2:Y:55:ILE:HG22	2:Y:86:VAL:HG21	0.60	1.74	13	7
1:A:36:ASP:OD2	1:A:39:GLN:HG3	0.59	1.97	25	3
2:Y:13:ASP:HB3	2:Y:37:GLU:HG3	0.59	1.73	19	1
2:Y:24:LEU:HD13	2:Y:24:LEU:C	0.59	2.17	7	1
1:A:57:PHE:CD1	1:A:57:PHE:N	0.59	2.70	22	1
2:Y:12:ASP:HB3	2:Y:18:ARG:HD3	0.59	1.73	18	1
1:A:9:TYR:CD1	1:A:57:PHE:CE2	0.59	2.90	20	2
1:A:213:CYS:O	2:Y:126:LYS:NZ	0.59	2.34	1	25
1:A:56:THR:HG23	1:A:57:PHE:CE1	0.59	2.33	2	1
2:Y:11:VAL:CG2	2:Y:56:SER:CB	0.59	2.80	11	2
1:A:54:ALA:HB2	1:A:62:LEU:CD2	0.59	2.27	4	3
1:A:36:ASP:OD2	1:A:39:GLN:HG2	0.59	1.98	9	3
2:Y:112:THR:HG22	2:Y:113:ALA:H	0.59	1.56	14	12
1:A:15:GLU:OE2	1:A:16:ALA:CB	0.59	2.51	16	4
2:Y:24:LEU:HD22	2:Y:113:ALA:CA	0.59	2.28	21	5
2:Y:57:ASP:OD2	2:Y:59:ASN:ND2	0.59	2.36	4	2
2:Y:72:ILE:HG23	2:Y:78:MET:HB3	0.58	1.73	1	25

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:18:ARG:HE	2:Y:35:GLU:HB3	0.58	1.57	14	3
1:A:12:PHE:CD1	1:A:15:GLU:OE2	0.58	2.56	8	3
1:A:60:THR:O	1:A:63:GLN:HG2	0.58	1.98	24	1
1:A:48:HIS:NE2	2:Y:59:ASN:ND2	0.58	2.51	1	2
1:A:12:PHE:CE2	1:A:59:PHE:CE2	0.58	2.91	18	3
1:A:62:LEU:HD12	1:A:101:GLN:OE1	0.58	1.99	1	1
1:A:168:LYS:O	1:A:171:GLU:HB2	0.58	1.98	1	25
2:Y:55:ILE:HG23	2:Y:86:VAL:HG23	0.58	1.76	2	7
1:A:62:LEU:O	1:A:66:THR:HG23	0.58	1.99	14	25
2:Y:18:ARG:C	2:Y:21:VAL:HG12	0.58	2.17	25	2
1:A:62:LEU:HD12	1:A:101:GLN:HB2	0.58	1.75	11	1
2:Y:37:GLU:OE1	2:Y:38:ASP:N	0.58	2.37	18	1
1:A:41:ASN:ND2	1:A:77:ARG:HH11	0.58	1.95	21	2
2:Y:111:PHE:CE1	2:Y:116:LEU:HB2	0.58	2.33	14	5
2:Y:21:VAL:HG13	2:Y:25:LEU:HD11	0.58	1.75	11	2
1:A:61:ILE:O	1:A:65:THR:HG23	0.58	1.99	18	1
1:A:15:GLU:OE2	2:Y:14:PHE:CE2	0.57	2.57	5	1
1:A:15:GLU:OE1	2:Y:14:PHE:CZ	0.57	2.57	7	6
1:A:59:PHE:CD1	1:A:105:TYR:CG	0.57	2.92	14	1
1:A:65:THR:HG21	1:A:101:GLN:NE2	0.57	2.02	18	1
1:A:61:ILE:HG23	1:A:116:PHE:CD1	0.57	2.35	7	15
2:Y:10:VAL:HG21	2:Y:33:VAL:HG13	0.57	1.76	7	6
2:Y:21:VAL:O	2:Y:25:LEU:HD23	0.57	1.99	17	1
2:Y:114:ALA:O	2:Y:117:GLU:HB3	0.57	1.99	1	25
1:A:56:THR:HG22	1:A:57:PHE:CD2	0.57	2.35	16	7
2:Y:24:LEU:HD21	2:Y:113:ALA:N	0.57	2.14	7	1
1:A:8:PHE:HB2	2:Y:20:ILE:HG21	0.57	1.75	21	1
2:Y:17:MET:HG3	2:Y:18:ARG:H	0.57	1.53	24	1
2:Y:12:ASP:O	2:Y:18:ARG:NH2	0.57	2.37	14	2
2:Y:25:LEU:HD22	2:Y:30:PHE:CB	0.57	2.29	19	3
2:Y:18:ARG:NE	2:Y:35:GLU:HB3	0.57	2.14	7	6
1:A:15:GLU:OE2	1:A:16:ALA:CA	0.57	2.53	9	4
2:Y:57:ASP:OD1	2:Y:60:MET:SD	0.57	2.62	6	3
2:Y:58:TRP:CH2	2:Y:94:ASN:HB3	0.56	2.34	7	5
1:A:55:GLY:HA2	1:A:63:GLN:NE2	0.56	2.15	14	1
1:A:45:ARG:NH2	2:Y:61:PRO:CG	0.56	2.68	3	1
2:Y:14:PHE:CZ	2:Y:16:THR:CG2	0.56	2.88	5	3
2:Y:13:ASP:HA	2:Y:37:GLU:HG3	0.56	1.76	16	4
2:Y:20:ILE:HG12	2:Y:23:ASN:OD1	0.56	2.00	2	1
2:Y:18:ARG:CZ	2:Y:37:GLU:OE2	0.56	2.54	11	1
1:A:57:PHE:CE1	1:A:59:PHE:CG	0.56	2.94	14	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:56:THR:HG21	1:A:57:PHE:CE1	0.56	2.36	3	4
1:A:45:ARG:NH2	2:Y:61:PRO:HG2	0.56	2.16	3	1
2:Y:17:MET:SD	2:Y:21:VAL:HG23	0.56	2.41	6	1
1:A:57:PHE:CE2	1:A:59:PHE:CZ	0.56	2.94	14	1
2:Y:57:ASP:N	2:Y:57:ASP:OD1	0.56	2.36	6	1
1:A:11:THR:HG22	2:Y:16:THR:HG23	0.56	1.78	23	2
2:Y:59:ASN:C	2:Y:60:MET:HG3	0.55	2.19	1	25
2:Y:14:PHE:CD2	2:Y:17:MET:HB3	0.55	2.35	13	3
2:Y:107:VAL:HG22	2:Y:108:VAL:N	0.55	2.17	1	25
2:Y:18:ARG:HD2	2:Y:35:GLU:HB3	0.55	1.78	21	5
2:Y:10:VAL:CG2	2:Y:33:VAL:HG12	0.55	2.29	20	1
1:A:54:ALA:HB3	1:A:63:GLN:HG2	0.55	1.79	11	1
2:Y:45:LYS:O	2:Y:48:ALA:HB3	0.55	2.00	1	25
1:A:7:ASP:O	1:A:8:PHE:HD1	0.55	1.85	13	4
1:A:65:THR:CG2	1:A:66:THR:N	0.55	2.69	10	1
2:Y:14:PHE:CD1	2:Y:14:PHE:C	0.55	2.80	4	11
2:Y:12:ASP:OD1	2:Y:18:ARG:CD	0.55	2.55	7	1
1:A:48:HIS:NE2	2:Y:59:ASN:HB3	0.55	2.16	5	1
2:Y:21:VAL:HG12	2:Y:25:LEU:CD1	0.55	2.31	20	1
2:Y:20:ILE:HG23	2:Y:23:ASN:ND2	0.55	2.14	5	1
2:Y:14:PHE:C	2:Y:18:ARG:NH1	0.55	2.60	14	1
1:A:8:PHE:HB2	2:Y:20:ILE:CD1	0.55	2.32	3	2
1:A:62:LEU:HD22	1:A:66:THR:HG23	0.55	1.79	23	1
1:A:9:TYR:OH	1:A:57:PHE:CD1	0.55	2.59	6	1
2:Y:15:SER:OG	2:Y:18:ARG:NH2	0.55	2.40	6	1
2:Y:87:THR:HG22	2:Y:89:GLU:H	0.54	1.61	3	1
1:A:54:ALA:HB1	1:A:63:GLN:HG2	0.54	1.77	14	1
1:A:172:VAL:CG1	1:A:190:LYS:HG2	0.54	2.33	1	25
1:A:7:ASP:C	1:A:8:PHE:HD1	0.54	2.06	9	4
1:A:7:ASP:OD1	1:A:7:ASP:N	0.54	2.40	5	1
1:A:62:LEU:HD23	1:A:101:GLN:OE1	0.54	2.02	23	1
2:Y:11:VAL:O	2:Y:12:ASP:CG	0.54	2.46	3	1
1:A:15:GLU:CG	2:Y:14:PHE:CE1	0.54	2.91	15	2
2:Y:24:LEU:HD21	2:Y:113:ALA:HA	0.54	1.76	7	1
2:Y:15:SER:N	2:Y:18:ARG:NH1	0.54	2.56	14	2
2:Y:55:ILE:HG23	2:Y:86:VAL:HG22	0.54	1.79	13	5
1:A:56:THR:OG1	2:Y:17:MET:HE1	0.54	2.03	1	1
2:Y:82:PRO:HA	2:Y:104:SER:OG	0.54	2.03	1	25
2:Y:13:ASP:OD2	2:Y:60:MET:HG2	0.54	2.02	5	1
2:Y:12:ASP:OD1	2:Y:18:ARG:HD3	0.54	2.02	7	1
2:Y:18:ARG:NH1	2:Y:37:GLU:OE2	0.54	2.37	17	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:18:ARG:NH1	2:Y:37:GLU:OE1	0.53	2.41	19	1
1:A:15:GLU:OE2	2:Y:16:THR:CB	0.53	2.56	20	1
1:A:57:PHE:CE1	1:A:59:PHE:CZ	0.53	2.97	14	1
2:Y:120:LEU:HB3	2:Y:124:PHE:CE2	0.53	2.38	1	25
2:Y:25:LEU:HD13	2:Y:30:PHE:HB2	0.53	1.80	14	1
2:Y:17:MET:CE	2:Y:20:ILE:HD12	0.53	2.34	5	1
1:A:45:ARG:HD3	2:Y:61:PRO:HG2	0.53	1.81	15	1
2:Y:58:TRP:CH2	2:Y:85:MET:CB	0.53	2.92	22	1
1:A:8:PHE:CE2	2:Y:110:PRO:CB	0.53	2.91	3	1
1:A:51:LYS:CG	1:A:63:GLN:NE2	0.53	2.71	10	1
2:Y:19:ARG:O	2:Y:23:ASN:ND2	0.53	2.42	21	1
2:Y:37:GLU:CD	2:Y:41:ASP:OD2	0.53	2.47	21	1
1:A:7:ASP:CG	1:A:8:PHE:CD1	0.53	2.72	6	1
2:Y:24:LEU:O	2:Y:24:LEU:HD13	0.53	2.04	7	1
1:A:213:CYS:HA	1:A:216:ILE:O	0.53	2.04	1	25
1:A:57:PHE:HB2	1:A:59:PHE:CE2	0.53	2.39	25	6
1:A:45:ARG:HH12	2:Y:37:GLU:HB3	0.53	1.64	8	1
1:A:12:PHE:O	1:A:15:GLU:OE2	0.52	2.26	10	4
1:A:9:TYR:CE2	1:A:57:PHE:HE2	0.52	2.21	14	1
2:Y:38:ASP:OD2	2:Y:62:ASN:ND2	0.52	2.42	9	5
2:Y:17:MET:HE3	2:Y:109:LYS:HD2	0.52	1.79	21	1
2:Y:111:PHE:CD1	2:Y:111:PHE:N	0.52	2.68	25	1
1:A:8:PHE:CD1	1:A:8:PHE:C	0.52	2.82	2	2
1:A:56:THR:CG2	1:A:57:PHE:CG	0.52	2.92	3	2
2:Y:87:THR:CG2	2:Y:89:GLU:O	0.52	2.58	3	1
1:A:9:TYR:CE1	1:A:57:PHE:CE2	0.52	2.97	14	1
1:A:56:THR:CG2	1:A:57:PHE:N	0.52	2.72	2	5
2:Y:14:PHE:CD2	2:Y:17:MET:CB	0.52	2.93	13	3
2:Y:10:VAL:HG12	2:Y:18:ARG:CG	0.52	2.34	15	1
2:Y:53:PHE:HE1	2:Y:84:LEU:CB	0.52	2.17	1	25
2:Y:24:LEU:HD22	2:Y:113:ALA:CB	0.52	2.35	12	7
2:Y:12:ASP:OD1	2:Y:12:ASP:C	0.52	2.48	7	1
2:Y:20:ILE:HG22	2:Y:24:LEU:CD1	0.52	2.29	18	1
2:Y:58:TRP:CE3	2:Y:85:MET:HB3	0.52	2.40	22	1
1:A:60:THR:CA	1:A:63:GLN:CG	0.52	2.87	24	1
2:Y:12:ASP:OD1	2:Y:57:ASP:HB3	0.52	2.04	5	1
1:A:8:PHE:CD2	2:Y:20:ILE:HG21	0.52	2.40	24	1
2:Y:10:VAL:CG1	2:Y:18:ARG:CG	0.52	2.87	1	3
1:A:61:ILE:HG23	1:A:116:PHE:CG	0.52	2.40	6	7
2:Y:18:ARG:O	2:Y:21:VAL:HG13	0.52	2.05	25	1
1:A:11:THR:HG23	2:Y:16:THR:HB	0.52	1.82	1	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:12:PHE:CE1	1:A:102:LEU:HD11	0.52	2.40	12	1
1:A:8:PHE:C	1:A:8:PHE:CD1	0.52	2.82	21	1
2:Y:58:TRP:HE3	2:Y:86:VAL:O	0.52	1.88	22	1
1:A:49:SER:HB3	2:Y:14:PHE:CD1	0.51	2.39	1	6
2:Y:55:ILE:HG22	2:Y:86:VAL:CG2	0.51	2.34	13	6
1:A:9:TYR:HB3	1:A:13:PHE:CZ	0.51	2.40	8	1
1:A:62:LEU:CD1	1:A:66:THR:HG23	0.51	2.35	5	1
2:Y:21:VAL:HA	2:Y:24:LEU:CD1	0.51	2.24	17	1
2:Y:38:ASP:CG	2:Y:62:ASN:OD1	0.51	2.47	6	2
2:Y:39:GLY:O	2:Y:43:LEU:HB2	0.51	2.05	1	25
2:Y:18:ARG:O	2:Y:22:ARG:HG3	0.51	2.06	23	2
1:A:11:THR:CG2	2:Y:16:THR:HG21	0.51	2.35	8	2
1:A:45:ARG:HG3	1:A:46:ALA:N	0.51	2.19	18	1
2:Y:13:ASP:O	2:Y:18:ARG:NH2	0.51	2.44	20	1
1:A:172:VAL:O	1:A:176:GLU:HB3	0.51	2.05	1	25
2:Y:93:GLU:CD	2:Y:93:GLU:H	0.51	2.09	1	11
2:Y:93:GLU:H	2:Y:93:GLU:CD	0.51	2.09	2	14
2:Y:10:VAL:HG12	2:Y:18:ARG:HG2	0.51	1.81	15	2
2:Y:4:LYS:HA	2:Y:30:PHE:CD2	0.51	2.41	1	25
1:A:36:ASP:OD2	1:A:39:GLN:NE2	0.51	2.44	22	1
2:Y:40:VAL:CG2	2:Y:62:ASN:HB3	0.51	2.36	2	2
2:Y:14:PHE:CE2	2:Y:17:MET:HB2	0.51	2.41	11	6
2:Y:14:PHE:C	2:Y:14:PHE:CD1	0.51	2.84	23	5
1:A:9:TYR:CD1	1:A:57:PHE:HD2	0.51	2.23	14	1
2:Y:54:VAL:HG12	2:Y:56:SER:CB	0.51	2.32	1	25
2:Y:13:ASP:OD1	2:Y:13:ASP:N	0.51	2.43	13	2
1:A:11:THR:CG2	2:Y:16:THR:OG1	0.51	2.55	22	1
1:A:7:ASP:C	1:A:8:PHE:CD1	0.50	2.84	22	10
1:A:15:GLU:CD	1:A:16:ALA:N	0.50	2.65	12	2
1:A:54:ALA:C	1:A:63:GLN:NE2	0.50	2.64	24	1
1:A:125:GLN:O	1:A:129:GLU:HG3	0.50	2.07	1	25
1:A:12:PHE:CD1	1:A:15:GLU:CD	0.50	2.85	8	1
2:Y:58:TRP:CH2	2:Y:94:ASN:CB	0.50	2.95	6	1
1:A:174:LEU:O	1:A:178:GLU:N	0.50	2.44	1	25
2:Y:24:LEU:HD22	2:Y:113:ALA:HB2	0.50	1.81	9	5
1:A:51:LYS:O	1:A:63:GLN:NE2	0.50	2.44	13	1
1:A:59:PHE:CE1	1:A:105:TYR:HB3	0.50	2.42	14	1
1:A:59:PHE:C	1:A:63:GLN:CD	0.50	2.71	24	1
2:Y:64:ASP:O	2:Y:68:LEU:HB2	0.50	2.07	1	25
2:Y:9:LEU:HG	2:Y:11:VAL:CG2	0.50	2.35	19	2
2:Y:25:LEU:HD13	2:Y:30:PHE:HB3	0.50	1.84	14	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:53:PHE:HE1	2:Y:84:LEU:HB2	0.50	1.63	1	25
2:Y:11:VAL:CG1	2:Y:36:ALA:HB3	0.50	2.35	17	3
1:A:11:THR:HB	2:Y:16:THR:HG21	0.50	1.83	10	2
2:Y:21:VAL:CG1	2:Y:25:LEU:HD11	0.50	2.36	16	1
2:Y:20:ILE:CG2	2:Y:24:LEU:HD11	0.50	2.37	6	1
2:Y:12:ASP:OD1	2:Y:57:ASP:OD2	0.50	2.30	1	1
2:Y:24:LEU:CD2	2:Y:113:ALA:N	0.50	2.75	18	2
2:Y:17:MET:SD	2:Y:109:LYS:HD2	0.50	2.47	2	1
1:A:8:PHE:HB3	2:Y:20:ILE:CD1	0.50	2.36	8	4
1:A:9:TYR:HB3	1:A:13:PHE:CE2	0.50	2.42	24	7
2:Y:12:ASP:OD1	2:Y:13:ASP:N	0.50	2.45	21	4
1:A:9:TYR:CZ	1:A:57:PHE:HE2	0.49	2.23	14	1
1:A:8:PHE:C	1:A:8:PHE:HD1	0.49	2.11	21	1
1:A:41:ASN:HD22	1:A:77:ARG:HH11	0.49	1.50	21	2
2:Y:12:ASP:HB3	2:Y:18:ARG:CD	0.49	2.36	1	2
2:Y:40:VAL:HG23	2:Y:62:ASN:HB3	0.49	1.84	2	2
2:Y:23:ASN:OD1	2:Y:24:LEU:HD23	0.49	2.08	4	2
1:A:62:LEU:CD1	1:A:66:THR:CG2	0.49	2.90	5	2
1:A:10:GLN:HG2	1:A:11:THR:N	0.49	2.23	7	1
2:Y:9:LEU:HD12	2:Y:9:LEU:C	0.49	2.27	17	1
2:Y:11:VAL:HG22	2:Y:36:ALA:HB3	0.49	1.84	19	1
1:A:8:PHE:CZ	1:A:57:PHE:CE1	0.49	2.99	2	1
2:Y:20:ILE:CG2	2:Y:21:VAL:N	0.49	2.75	4	2
2:Y:24:LEU:HD22	2:Y:113:ALA:HA	0.49	1.84	2	5
1:A:41:ASN:OD1	1:A:45:ARG:HD2	0.49	2.08	16	1
1:A:15:GLU:CG	1:A:16:ALA:N	0.49	2.75	25	9
2:Y:18:ARG:HA	2:Y:21:VAL:CG2	0.49	2.38	12	1
2:Y:65:GLY:O	2:Y:68:LEU:HB3	0.49	2.08	1	25
1:A:8:PHE:CE2	2:Y:110:PRO:HG3	0.49	2.41	3	1
2:Y:14:PHE:CE1	2:Y:16:THR:N	0.49	2.80	4	7
2:Y:20:ILE:CG1	2:Y:24:LEU:HD21	0.49	2.29	4	1
2:Y:18:ARG:HD2	2:Y:35:GLU:HG2	0.49	1.83	16	4
1:A:56:THR:OG1	2:Y:17:MET:CE	0.49	2.60	1	1
2:Y:73:ARG:NH1	2:Y:80:ALA:HA	0.49	2.23	1	25
2:Y:37:GLU:O	2:Y:37:GLU:HG2	0.49	2.07	22	1
2:Y:66:LEU:O	2:Y:70:LYS:N	0.49	2.45	1	25
2:Y:25:LEU:HD23	2:Y:116:LEU:HD21	0.49	1.85	5	2
1:A:12:PHE:CG	1:A:13:PHE:N	0.49	2.80	12	1
2:Y:17:MET:CE	2:Y:109:LYS:HD2	0.49	2.38	21	2
2:Y:20:ILE:CG1	2:Y:21:VAL:N	0.49	2.74	23	2
1:A:8:PHE:CZ	2:Y:110:PRO:HG3	0.48	2.43	3	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:12:ASP:OD1	2:Y:18:ARG:CG	0.48	2.61	7	1
1:A:8:PHE:HD1	1:A:8:PHE:C	0.48	2.12	2	2
1:A:62:LEU:HD22	1:A:66:THR:CG2	0.48	2.37	10	1
1:A:13:PHE:CD1	1:A:106:LYS:CG	0.48	2.96	11	3
1:A:11:THR:HG23	2:Y:16:THR:OG1	0.48	2.08	14	2
2:Y:24:LEU:N	2:Y:24:LEU:HD23	0.48	2.23	14	1
2:Y:20:ILE:HG13	2:Y:21:VAL:N	0.48	2.23	16	2
1:A:15:GLU:OE2	2:Y:16:THR:HB	0.48	2.07	20	1
2:Y:58:TRP:CZ3	2:Y:94:ASN:HB3	0.48	2.43	6	2
1:A:11:THR:HG21	2:Y:16:THR:HG23	0.48	1.85	14	1
2:Y:17:MET:HE2	2:Y:17:MET:HA	0.48	1.84	5	1
1:A:45:ARG:NH2	2:Y:13:ASP:HB3	0.48	2.23	8	1
2:Y:17:MET:SD	2:Y:109:LYS:CD	0.48	3.01	2	1
1:A:56:THR:HG21	1:A:57:PHE:CZ	0.48	2.44	3	1
2:Y:12:ASP:OD1	2:Y:18:ARG:HG3	0.48	2.08	7	1
2:Y:11:VAL:HG21	2:Y:56:SER:OG	0.48	2.08	11	1
2:Y:58:TRP:CE3	2:Y:85:MET:HE2	0.48	2.44	20	3
2:Y:7:LYS:HD3	2:Y:51:TYR:CE1	0.48	2.44	1	25
2:Y:24:LEU:O	2:Y:25:LEU:C	0.48	2.52	1	25
2:Y:87:THR:HG22	2:Y:89:GLU:O	0.48	2.09	3	1
1:A:41:ASN:O	1:A:45:ARG:HD2	0.48	2.09	6	2
2:Y:17:MET:HE2	2:Y:17:MET:O	0.48	2.08	12	1
2:Y:24:LEU:HD11	2:Y:111:PHE:O	0.48	2.09	21	2
1:A:57:PHE:HD1	1:A:57:PHE:C	0.48	2.05	14	1
2:Y:124:PHE:HD1	2:Y:129:MET:CE	0.47	2.21	1	25
1:A:8:PHE:N	1:A:8:PHE:HD1	0.47	2.05	22	2
1:A:63:GLN:HE22	1:A:67:HIS:HB2	0.47	1.69	10	1
2:Y:57:ASP:OD1	2:Y:57:ASP:O	0.47	2.31	6	1
2:Y:27:GLU:HG3	2:Y:27:GLU:O	0.47	2.09	1	13
2:Y:13:ASP:OD1	2:Y:37:GLU:O	0.47	2.32	1	1
2:Y:15:SER:CA	2:Y:18:ARG:HG3	0.47	2.39	2	1
2:Y:27:GLU:O	2:Y:27:GLU:HG3	0.47	2.09	3	12
2:Y:24:LEU:CD2	2:Y:111:PHE:O	0.47	2.62	10	1
1:A:45:ARG:CZ	2:Y:61:PRO:HG2	0.47	2.39	16	1
2:Y:58:TRP:CD1	2:Y:58:TRP:C	0.47	2.87	21	1
1:A:15:GLU:HG2	2:Y:14:PHE:CE1	0.47	2.45	20	1
1:A:8:PHE:CD2	2:Y:110:PRO:CB	0.47	2.98	5	2
2:Y:112:THR:CG2	2:Y:113:ALA:N	0.47	2.75	24	4
2:Y:24:LEU:N	2:Y:24:LEU:CD2	0.47	2.69	23	1
1:A:9:TYR:CD2	1:A:57:PHE:CZ	0.47	3.02	6	1
2:Y:25:LEU:CD2	2:Y:30:PHE:CD1	0.47	2.96	19	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:11:VAL:CG2	2:Y:36:ALA:HB3	0.47	2.36	21	1
2:Y:13:ASP:OD1	2:Y:37:GLU:OE2	0.47	2.33	22	1
1:A:56:THR:HG22	1:A:57:PHE:N	0.47	2.24	9	16
2:Y:109:LYS:HA	2:Y:111:PHE:CD2	0.47	2.44	10	6
2:Y:23:ASN:HD22	2:Y:23:ASN:N	0.47	2.08	11	1
2:Y:9:LEU:CD1	2:Y:11:VAL:HG22	0.47	2.39	17	1
1:A:7:ASP:O	1:A:8:PHE:CD1	0.47	2.68	1	1
1:A:54:ALA:HB2	1:A:62:LEU:HD21	0.47	1.86	4	1
1:A:165:SER:C	1:A:166:ARG:HG3	0.47	2.29	1	25
2:Y:17:MET:O	2:Y:18:ARG:C	0.47	2.52	1	25
2:Y:37:GLU:OE2	2:Y:38:ASP:CG	0.47	2.53	3	2
2:Y:12:ASP:OD1	2:Y:12:ASP:O	0.47	2.33	7	1
2:Y:87:THR:OG1	2:Y:89:GLU:O	0.47	2.33	7	4
2:Y:18:ARG:HH21	2:Y:35:GLU:HB3	0.47	1.69	11	1
1:A:202:ASP:OD1	1:A:203:ILE:HG22	0.47	2.10	1	25
2:Y:25:LEU:CD2	2:Y:30:PHE:HB2	0.47	2.39	1	1
2:Y:57:ASP:OD1	2:Y:59:ASN:ND2	0.47	2.47	1	1
1:A:45:ARG:NH1	2:Y:37:GLU:HB2	0.47	2.25	2	1
2:Y:14:PHE:CZ	2:Y:16:THR:CB	0.47	2.98	5	7
1:A:12:PHE:C	1:A:12:PHE:CD1	0.47	2.87	9	2
1:A:179:LEU:CB	1:A:185:LEU:HD11	0.46	2.41	1	25
1:A:11:THR:OG1	2:Y:16:THR:HG23	0.46	2.09	8	2
2:Y:23:ASN:OD1	2:Y:24:LEU:N	0.46	2.49	6	2
1:A:182:LEU:HD11	1:A:211:VAL:CG1	0.46	2.41	1	25
1:A:60:THR:C	1:A:63:GLN:HG2	0.46	2.31	24	1
1:A:166:ARG:CZ	1:A:220:GLN:HG3	0.46	2.39	1	25
2:Y:34:GLU:CG	2:Y:35:GLU:N	0.46	2.78	1	25
2:Y:17:MET:CE	2:Y:17:MET:HA	0.46	2.41	5	1
2:Y:18:ARG:C	2:Y:21:VAL:CG2	0.46	2.84	12	1
2:Y:57:ASP:C	2:Y:57:ASP:OD1	0.46	2.53	4	1
2:Y:20:ILE:HG23	2:Y:24:LEU:HD11	0.46	1.87	6	1
2:Y:20:ILE:HG23	2:Y:24:LEU:CD1	0.46	2.40	19	2
1:A:60:THR:O	1:A:63:GLN:HG3	0.46	2.10	24	1
2:Y:98:ALA:HB1	2:Y:103:ALA:HB3	0.46	1.87	1	25
2:Y:59:ASN:ND2	2:Y:59:ASN:H	0.46	2.09	4	1
2:Y:24:LEU:CD2	2:Y:113:ALA:HA	0.46	2.37	7	1
2:Y:12:ASP:O	2:Y:18:ARG:NE	0.46	2.48	11	1
2:Y:14:PHE:CE2	2:Y:17:MET:CB	0.46	2.99	13	1
1:A:9:TYR:OH	1:A:59:PHE:CZ	0.46	2.68	6	1
1:A:182:LEU:HD11	1:A:211:VAL:HB	0.46	1.86	1	25
1:A:24:GLU:HB2	1:A:95:LYS:HE2	0.46	1.87	7	25

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:9:TYR:CE1	1:A:57:PHE:HB3	0.46	2.45	2	1
2:Y:9:LEU:CD2	2:Y:11:VAL:CG2	0.46	2.77	15	1
2:Y:40:VAL:CG2	2:Y:62:ASN:HB2	0.46	2.41	20	2
2:Y:23:ASN:OD1	2:Y:23:ASN:O	0.46	2.33	4	1
2:Y:11:VAL:O	2:Y:57:ASP:HB3	0.46	2.11	23	4
2:Y:12:ASP:CG	2:Y:14:PHE:H	0.46	2.14	7	2
1:A:48:HIS:NE2	2:Y:59:ASN:HB2	0.46	2.25	15	1
1:A:15:GLU:OE2	2:Y:14:PHE:CE1	0.46	2.69	3	1
1:A:41:ASN:OD1	1:A:45:ARG:CZ	0.46	2.64	13	1
1:A:9:TYR:CG	1:A:57:PHE:CE2	0.46	3.03	6	1
1:A:12:PHE:CD1	1:A:12:PHE:C	0.45	2.89	1	2
1:A:12:PHE:O	1:A:15:GLU:CD	0.45	2.54	25	3
1:A:41:ASN:ND2	1:A:41:ASN:C	0.45	2.70	15	1
2:Y:12:ASP:O	2:Y:18:ARG:CZ	0.45	2.65	20	1
2:Y:124:PHE:CD1	2:Y:129:MET:CE	0.45	3.00	1	25
2:Y:37:GLU:OE2	2:Y:38:ASP:N	0.45	2.49	7	1
1:A:11:THR:OG1	2:Y:16:THR:OG1	0.45	2.19	20	1
1:A:59:PHE:CD2	1:A:105:TYR:CD2	0.45	3.04	21	1
1:A:9:TYR:CE1	1:A:59:PHE:CE1	0.45	3.04	21	1
1:A:10:GLN:HG3	1:A:11:THR:H	0.45	1.68	8	1
2:Y:25:LEU:HD12	2:Y:30:PHE:HB2	0.45	1.87	17	1
1:A:39:GLN:HA	1:A:39:GLN:OE1	0.45	2.10	22	1
2:Y:115:THR:O	2:Y:116:LEU:C	0.45	2.53	1	25
2:Y:11:VAL:C	2:Y:12:ASP:OD1	0.45	2.55	3	1
1:A:60:THR:HG22	1:A:61:ILE:N	0.45	2.26	14	2
2:Y:57:ASP:OD1	2:Y:57:ASP:C	0.45	2.54	1	1
2:Y:42:ALA:O	2:Y:46:LEU:HG	0.45	2.12	1	25
2:Y:9:LEU:HD11	2:Y:36:ALA:CB	0.45	2.41	8	1
2:Y:111:PHE:CD1	2:Y:111:PHE:C	0.45	2.90	14	2
1:A:50:ILE:CG2	1:A:62:LEU:HD11	0.45	2.42	4	1
2:Y:21:VAL:HG13	2:Y:25:LEU:CD1	0.45	2.41	11	1
2:Y:18:ARG:CA	2:Y:21:VAL:CG2	0.45	2.95	12	1
2:Y:58:TRP:CE3	2:Y:85:MET:CE	0.45	3.00	25	3
2:Y:20:ILE:C	2:Y:24:LEU:HD21	0.45	2.32	17	1
1:A:218:ALA:HA	1:A:221:ILE:HD12	0.45	1.89	1	25
1:A:8:PHE:CE2	2:Y:110:PRO:HB2	0.45	2.47	7	1
1:A:64:GLU:OE1	1:A:64:GLU:O	0.45	2.35	8	1
1:A:12:PHE:CD1	1:A:13:PHE:N	0.45	2.85	16	2
2:Y:11:VAL:O	2:Y:57:ASP:HB2	0.45	2.12	21	1
1:A:224:GLU:O	1:A:225:THR:C	0.44	2.55	1	25
2:Y:24:LEU:HD22	2:Y:113:ALA:N	0.44	2.27	1	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
2:Y:24:LEU:CD1	2:Y:111:PHE:O	0.44	2.65	21	2
1:A:48:HIS:CD2	2:Y:13:ASP:OD1	0.44	2.70	14	2
1:A:57:PHE:N	1:A:57:PHE:HD1	0.44	2.08	22	1
1:A:60:THR:CA	1:A:63:GLN:OE1	0.44	2.62	24	1
1:A:204:ALA:O	1:A:205:GLU:C	0.44	2.56	1	25
1:A:32:PRO:O	1:A:35:PRO:HD3	0.44	2.13	9	25
1:A:15:GLU:CD	2:Y:14:PHE:CZ	0.44	2.91	18	1
2:Y:107:VAL:CG2	2:Y:108:VAL:N	0.44	2.80	1	25
2:Y:14:PHE:HZ	2:Y:16:THR:CG2	0.44	2.24	5	1
2:Y:24:LEU:CG	2:Y:113:ALA:HA	0.44	2.43	7	1
2:Y:24:LEU:HD13	2:Y:113:ALA:CA	0.44	2.42	25	1
1:A:41:ASN:ND2	1:A:45:ARG:HD2	0.44	2.28	5	1
1:A:10:GLN:CG	1:A:11:THR:N	0.44	2.80	7	1
2:Y:17:MET:HG3	2:Y:21:VAL:CG2	0.44	2.42	22	1
1:A:42:ALA:CA	1:A:45:ARG:HD3	0.44	2.40	4	1
1:A:61:ILE:HD13	1:A:111:PRO:HD2	0.44	1.89	16	1
2:Y:17:MET:HE1	2:Y:109:LYS:HD3	0.44	1.87	22	1
2:Y:9:LEU:HG	2:Y:11:VAL:HG13	0.44	1.89	23	1
1:A:12:PHE:O	1:A:12:PHE:CD1	0.44	2.71	9	1
2:Y:38:ASP:CG	2:Y:62:ASN:HD21	0.44	2.15	20	2
1:A:45:ARG:HD2	2:Y:13:ASP:CB	0.44	2.42	25	1
2:Y:86:VAL:HG22	2:Y:107:VAL:CG1	0.44	2.43	9	7
2:Y:12:ASP:O	2:Y:18:ARG:NH1	0.44	2.51	7	1
2:Y:19:ARG:O	2:Y:23:ASN:OD1	0.44	2.36	10	2
2:Y:15:SER:OG	2:Y:18:ARG:NH1	0.44	2.47	13	1
2:Y:24:LEU:CD2	2:Y:24:LEU:N	0.44	2.80	15	1
1:A:77:ARG:CZ	2:Y:61:PRO:HB3	0.44	2.43	20	1
2:Y:24:LEU:HD13	2:Y:113:ALA:N	0.44	2.27	25	1
1:A:11:THR:OG1	2:Y:16:THR:HG21	0.44	2.13	8	1
1:A:36:ASP:OD2	1:A:39:GLN:CG	0.44	2.66	18	1
1:A:60:THR:CA	1:A:63:GLN:CD	0.44	2.84	24	1
1:A:8:PHE:HB3	2:Y:20:ILE:HG12	0.44	1.87	24	1
2:Y:25:LEU:HD22	2:Y:116:LEU:HD21	0.44	1.87	4	1
1:A:15:GLU:HG2	2:Y:14:PHE:CZ	0.44	2.48	17	1
1:A:56:THR:O	2:Y:110:PRO:HD3	0.44	2.12	21	1
1:A:62:LEU:HD12	1:A:62:LEU:O	0.43	2.12	5	1
1:A:11:THR:C	2:Y:16:THR:HG21	0.43	2.32	21	1
1:A:188:VAL:HG13	1:A:195:LEU:HD11	0.43	1.89	1	25
1:A:53:GLY:O	1:A:57:PHE:CE2	0.43	2.71	21	1
2:Y:23:ASN:OD1	2:Y:24:LEU:HG	0.43	2.12	6	1
1:A:215:VAL:HG12	1:A:216:ILE:CD1	0.43	2.40	1	25

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:8:PHE:HE2	2:Y:110:PRO:CG	0.43	2.23	3	1
2:Y:13:ASP:C	2:Y:18:ARG:NH1	0.43	2.71	12	1
2:Y:20:ILE:HG23	2:Y:23:ASN:OD1	0.43	2.13	18	1
2:Y:21:VAL:HG22	2:Y:25:LEU:HD12	0.43	1.89	25	1
1:A:77:ARG:HH22	2:Y:61:PRO:CB	0.43	2.23	19	1
2:Y:12:ASP:OD2	2:Y:57:ASP:HB2	0.43	2.12	3	1
2:Y:17:MET:CG	2:Y:18:ARG:N	0.43	2.76	17	1
2:Y:12:ASP:HB3	2:Y:18:ARG:HD2	0.43	1.90	1	1
2:Y:10:VAL:HG13	2:Y:12:ASP:OD1	0.43	2.13	3	1
1:A:45:ARG:NH1	2:Y:61:PRO:CG	0.43	2.81	7	1
1:A:45:ARG:NH1	2:Y:37:GLU:HG2	0.43	2.29	8	1
1:A:15:GLU:HG3	2:Y:14:PHE:CZ	0.43	2.48	9	2
1:A:57:PHE:CD1	1:A:59:PHE:CE2	0.43	3.06	14	1
1:A:45:ARG:CD	2:Y:61:PRO:CG	0.43	2.91	15	1
2:Y:23:ASN:C	2:Y:23:ASN:OD1	0.43	2.57	25	1
2:Y:84:LEU:HD13	2:Y:123:ILE:CD1	0.43	2.40	1	25
2:Y:37:GLU:OE1	2:Y:41:ASP:OD2	0.43	2.36	7	1
1:A:45:ARG:HH12	2:Y:61:PRO:CG	0.43	2.27	7	1
2:Y:25:LEU:HD12	2:Y:30:PHE:CB	0.43	2.43	17	1
2:Y:21:VAL:HG22	2:Y:25:LEU:CD1	0.43	2.43	25	1
2:Y:6:LEU:HD21	2:Y:53:PHE:CD2	0.43	2.48	1	25
1:A:56:THR:CG2	1:A:57:PHE:CZ	0.43	3.02	3	1
2:Y:111:PHE:CE1	2:Y:116:LEU:HD22	0.43	2.49	7	3
2:Y:41:ASP:O	2:Y:45:LYS:HB2	0.43	2.12	1	25
2:Y:37:GLU:O	2:Y:37:GLU:CG	0.43	2.66	4	1
1:A:61:ILE:HG12	1:A:116:PHE:CG	0.43	2.49	8	1
1:A:45:ARG:CG	2:Y:61:PRO:HG3	0.43	2.44	15	1
2:Y:24:LEU:HD23	2:Y:113:ALA:CA	0.43	2.44	18	1
2:Y:18:ARG:NH2	2:Y:35:GLU:OE1	0.43	2.51	23	1
1:A:56:THR:HG21	2:Y:17:MET:HE3	0.42	1.91	1	1
1:A:97:ILE:O	1:A:101:GLN:HG3	0.42	2.14	21	25
2:Y:24:LEU:HA	2:Y:24:LEU:HD23	0.42	1.50	20	3
1:A:45:ARG:CZ	2:Y:13:ASP:HB2	0.42	2.43	8	1
2:Y:17:MET:HE2	2:Y:109:LYS:HD2	0.42	1.90	16	1
1:A:36:ASP:HB3	1:A:39:GLN:HG3	0.42	1.90	18	1
2:Y:11:VAL:O	2:Y:11:VAL:CG1	0.42	2.67	1	1
1:A:45:ARG:NH2	2:Y:13:ASP:CB	0.42	2.83	8	1
1:A:62:LEU:O	1:A:62:LEU:HD22	0.42	2.14	23	1
2:Y:11:VAL:HG21	2:Y:56:SER:CB	0.42	2.44	11	2
2:Y:9:LEU:HD11	2:Y:11:VAL:CG1	0.42	2.40	17	1
2:Y:17:MET:SD	2:Y:21:VAL:HG21	0.42	2.54	24	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:9:TYR:CZ	1:A:57:PHE:CG	0.42	3.03	6	1
2:Y:43:LEU:HD22	2:Y:63:MET:SD	0.42	2.55	1	25
2:Y:91:LYS:HG3	2:Y:94:ASN:HB2	0.42	1.90	22	1
1:A:59:PHE:C	1:A:63:GLN:NE2	0.42	2.73	24	1
2:Y:21:VAL:CG1	2:Y:22:ARG:N	0.42	2.82	4	1
1:A:57:PHE:CG	1:A:59:PHE:CE2	0.42	3.07	14	1
2:Y:111:PHE:O	2:Y:111:PHE:HD1	0.42	1.98	25	1
1:A:33:GLU:OE1	1:A:33:GLU:N	0.42	2.45	3	1
2:Y:17:MET:CE	2:Y:21:VAL:HG13	0.42	2.43	12	1
2:Y:58:TRP:C	2:Y:59:ASN:OD1	0.42	2.58	6	1
1:A:55:GLY:N	1:A:63:GLN:HG3	0.42	2.30	23	2
2:Y:24:LEU:HD23	2:Y:24:LEU:HA	0.42	1.52	16	1
2:Y:58:TRP:HB3	2:Y:59:ASN:OD1	0.42	2.14	25	2
1:A:12:PHE:CZ	1:A:102:LEU:CD1	0.42	3.03	16	1
2:Y:11:VAL:HG12	2:Y:56:SER:CA	0.42	2.41	1	1
2:Y:20:ILE:O	2:Y:23:ASN:ND2	0.42	2.53	2	1
2:Y:11:VAL:C	2:Y:12:ASP:CG	0.42	2.79	3	1
1:A:61:ILE:HG13	1:A:116:PHE:CG	0.42	2.50	4	1
2:Y:18:ARG:CD	2:Y:35:GLU:HB3	0.42	2.44	7	1
1:A:59:PHE:CE1	1:A:105:TYR:CB	0.42	3.03	14	1
1:A:45:ARG:CD	2:Y:61:PRO:HG3	0.42	2.44	15	1
2:Y:108:VAL:O	2:Y:111:PHE:HD2	0.42	1.98	18	1
2:Y:20:ILE:HG22	2:Y:21:VAL:N	0.42	2.30	19	1
1:A:61:ILE:CG2	1:A:116:PHE:CG	0.41	3.03	9	1
1:A:13:PHE:CD1	1:A:106:LYS:HG2	0.41	2.50	11	1
1:A:56:THR:O	2:Y:110:PRO:HG3	0.41	2.14	24	1
2:Y:38:ASP:HB2	2:Y:61:PRO:O	0.41	2.15	1	25
2:Y:11:VAL:CG2	2:Y:56:SER:OG	0.41	2.67	11	1
2:Y:17:MET:SD	2:Y:21:VAL:HG22	0.41	2.54	14	1
2:Y:6:LEU:HD23	2:Y:8:PHE:CZ	0.41	2.50	1	25
2:Y:14:PHE:O	2:Y:18:ARG:HD3	0.41	2.15	4	1
1:A:33:GLU:N	1:A:33:GLU:OE1	0.41	2.45	7	1
2:Y:108:VAL:O	2:Y:111:PHE:CD2	0.41	2.73	11	1
1:A:12:PHE:CA	1:A:15:GLU:OE1	0.41	2.68	16	2
2:Y:17:MET:HG3	2:Y:21:VAL:HG23	0.41	1.91	22	1
1:A:41:ASN:OD1	1:A:42:ALA:N	0.41	2.52	24	1
2:Y:24:LEU:CD1	2:Y:24:LEU:C	0.41	2.88	7	1
1:A:11:THR:HB	2:Y:16:THR:OG1	0.41	2.14	15	1
1:A:74:ASP:O	1:A:78:ARG:HG2	0.41	2.16	9	8
1:A:11:THR:HG23	2:Y:16:THR:HG23	0.41	1.89	9	1
1:A:48:HIS:CE1	2:Y:59:ASN:HB3	0.41	2.50	20	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:11:THR:HG23	2:Y:16:THR:CB	0.41	2.45	1	1
1:A:195:LEU:HA	1:A:195:LEU:HD12	0.41	1.71	1	11
1:A:195:LEU:HD12	1:A:195:LEU:HA	0.41	1.71	3	14
1:A:45:ARG:HG3	2:Y:61:PRO:HG3	0.41	1.92	15	1
1:A:7:ASP:OD1	1:A:7:ASP:O	0.41	2.39	8	1
2:Y:86:VAL:HG23	2:Y:107:VAL:CG1	0.41	2.46	24	1
1:A:57:PHE:CB	1:A:59:PHE:CE2	0.41	3.04	25	1
1:A:12:PHE:CG	1:A:57:PHE:CE2	0.41	3.09	21	1
1:A:214:PHE:HE2	2:Y:95:ILE:HG23	0.41	1.76	1	25
2:Y:53:PHE:CE1	2:Y:84:LEU:CB	0.41	2.99	1	25
2:Y:22:ARG:HG2	2:Y:23:ASN:N	0.41	2.30	12	1
2:Y:24:LEU:HD23	2:Y:113:ALA:N	0.41	2.31	19	1
1:A:9:TYR:HE1	1:A:57:PHE:HB3	0.41	1.76	2	1
2:Y:24:LEU:HD21	2:Y:111:PHE:O	0.41	2.16	10	1
1:A:209:THR:O	1:A:213:CYS:SG	0.40	2.79	1	25
1:A:62:LEU:HD22	1:A:101:GLN:CB	0.40	2.44	5	1
2:Y:37:GLU:OE1	2:Y:41:ASP:HB3	0.40	2.16	18	1
1:A:51:LYS:HG2	1:A:63:GLN:NE2	0.40	2.31	2	1
1:A:61:ILE:CG2	1:A:116:PHE:CD1	0.40	3.04	9	1
2:Y:14:PHE:CD1	2:Y:15:SER:N	0.40	2.89	12	1
2:Y:25:LEU:HD21	2:Y:116:LEU:HD21	0.40	1.93	21	1
2:Y:24:LEU:HD12	2:Y:111:PHE:HE1	0.40	1.70	23	1
1:A:191:GLY:O	1:A:192:ALA:C	0.40	2.55	1	25
1:A:13:PHE:CD1	1:A:106:LYS:HG3	0.40	2.52	11	1
2:Y:18:ARG:NH2	2:Y:37:GLU:CG	0.40	2.83	14	1
2:Y:24:LEU:HD12	2:Y:113:ALA:N	0.40	2.31	15	1
2:Y:15:SER:HA	2:Y:18:ARG:CG	0.40	2.45	2	1
1:A:54:ALA:CB	1:A:62:LEU:CD2	0.40	3.00	4	1
1:A:48:HIS:HA	1:A:70:GLU:OE1	0.40	2.17	23	3
2:Y:15:SER:N	2:Y:18:ARG:HH11	0.40	2.14	14	1
1:A:41:ASN:OD1	1:A:45:ARG:CD	0.40	2.69	16	1
1:A:11:THR:HG21	2:Y:20:ILE:HD11	0.40	1.93	20	1
1:A:57:PHE:CE1	2:Y:110:PRO:HG3	0.40	2.51	23	1
1:A:174:LEU:HA	1:A:177:GLU:HB2	0.40	1.94	1	25
1:A:8:PHE:HD2	2:Y:110:PRO:CB	0.40	2.29	7	1
1:A:57:PHE:O	1:A:57:PHE:CE1	0.40	2.64	14	1
1:A:12:PHE:HA	1:A:15:GLU:HG2	0.40	1.93	17	1
2:Y:12:ASP:OD2	2:Y:17:MET:CE	0.40	2.69	18	1
1:A:59:PHE:O	1:A:63:GLN:CD	0.40	2.60	24	1
2:Y:58:TRP:CH2	2:Y:94:ASN:CA	0.40	3.04	6	1

## 5.2 Torsion angles

### 5.2.1 Protein backbone

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	191/225 (85%)	183±1 (96±0%)	7±1 (4±0%)	1±1 (0±0%)	38	78
2	Y	126/128 (98%)	119±0 (94±0%)	6±0 (5±0%)	1±0 (1±0%)	24	71
All	All	7925/8825 (90%)	7554 (95%)	325 (4%)	46 (1%)	29	74

All 4 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
2	Y	79	SER	25
1	A	7	ASP	10
1	A	160	ARG	7
1	A	132	GLY	4

### 5.2.2 Protein sidechains

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	160/193 (83%)	143±2 (89±1%)	17±2 (11±1%)	10	54
2	Y	95/102 (93%)	79±2 (83±2%)	16±2 (17±2%)	5	39
All	All	6375/7375 (86%)	5526 (87%)	849 (13%)	7	48

All 60 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	203	ILE	25
2	Y	60	MET	25
2	Y	78	MET	25

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Mol	Chain	Res	Type	Models (Total)
2	Y	119	LYS	25
1	A	131	LYS	25
1	A	176	GLU	25
1	A	95	LYS	25
2	Y	5	GLU	25
1	A	216	ILE	25
1	A	208	ILE	25
1	A	160	ARG	25
2	Y	4	LYS	25
2	Y	129	MET	25
2	Y	127	LEU	25
2	Y	104	SER	25
1	A	166	ARG	25
1	A	161	ARG	25
1	A	15	GLU	22
1	A	8	PHE	22
1	A	56	THR	22
1	A	63	GLN	16
2	Y	111	PHE	15
2	Y	16	THR	15
2	Y	112	THR	15
1	A	10	GLN	15
2	Y	11	VAL	14
2	Y	24	LEU	14
2	Y	87	THR	14
1	A	11	THR	13
1	A	41	ASN	13
1	A	71	ASN	12
2	Y	15	SER	12
2	Y	20	ILE	11
2	Y	13	ASP	11
2	Y	57	ASP	10
1	A	7	ASP	10
1	A	60	THR	10
2	Y	17	MET	10
1	A	64	GLU	9
2	Y	23	ASN	9
2	Y	59	ASN	9
2	Y	58	TRP	8
1	A	14	ASP	8
2	Y	10	VAL	8
1	A	62	LEU	7

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Mol	Chain	Res	Type	Models (Total)
2	Y	37	GLU	7
1	A	12	PHE	7
2	Y	18	ARG	7
1	A	45	ARG	6
2	Y	86	VAL	6
1	A	61	ILE	5
2	Y	9	LEU	5
1	A	65	THR	5
1	A	57	PHE	5
2	Y	12	ASP	4
1	A	39	GLN	4
2	Y	21	VAL	4
2	Y	62	ASN	3
2	Y	25	LEU	1
1	A	9	TYR	1

### 5.2.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.4 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.5 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.6 Other polymers [i](#)

There are no such molecules in this entry.

## 5.7 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Chemical shift validation

The completeness of assignment taking into account all chemical shift lists is 6% for the well-defined parts and 5% for the entire structure.

### 6.1 Chemical shift list 1

File name: input\_cs.cif

Chemical shift list name: *assigned\_chem\_shift\_list\_1*

#### 6.1.1 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	216
Number of shifts mapped to atoms	216
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	0

#### 6.1.2 Chemical shift referencing

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction $\pm$ precision, ppm	Suggested action
$^{13}\text{C}_\alpha$	0	—	None (insufficient data)
$^{13}\text{C}_\beta$	0	—	None (insufficient data)
$^{13}\text{C}'$	0	—	None (insufficient data)
$^{15}\text{N}$	108	$0.14 \pm 0.38$	None needed ( $< 0.5$ ppm)

#### 6.1.3 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 6%, i.e. 216 atoms were assigned a chemical shift out of a possible 3830. 0 out of 58 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	$^1\text{H}$	$^{13}\text{C}$	$^{15}\text{N}$
Backbone	216/1586 (14%)	108/633 (17%)	0/640 (0%)	108/313 (35%)
Sidechain	0/2020 (0%)	0/1163 (0%)	0/782 (0%)	0/75 (0%)

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	Total	<sup>1</sup> H	<sup>13</sup> C	<sup>15</sup> N
Aromatic	0/224 (0%)	0/122 (0%)	0/97 (0%)	0/5 (0%)
Overall	216/3830 (6%)	108/1918 (6%)	0/1519 (0%)	108/393 (27%)

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 5%, i.e. 216 atoms were assigned a chemical shift out of a possible 4212. 0 out of 62 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	<sup>1</sup> H	<sup>13</sup> C	<sup>15</sup> N
Backbone	216/1745 (12%)	108/696 (16%)	0/706 (0%)	108/343 (31%)
Sidechain	0/2243 (0%)	0/1296 (0%)	0/862 (0%)	0/85 (0%)
Aromatic	0/224 (0%)	0/122 (0%)	0/97 (0%)	0/5 (0%)
Overall	216/4212 (5%)	108/2114 (5%)	0/1665 (0%)	108/433 (25%)

#### 6.1.4 Statistically unusual chemical shifts [i](#)

There are no statistically unusual chemical shifts.

#### 6.1.5 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.

Random coil index (RCI) for chain Y:

