Full wwPDB NMR Structure Validation Report (i)

Feb 26, 2022 – 02:47 PM EST

PDB ID	:	2COA
Title	:	Solution structure of the PH domain of protein kinase C, D2 type from human
Authors	:	Li, H.; Saito, K.; Koshiba, S.; Inoue, M.; Kigawa, T.; Yokoyama, S.; RIKEN Structural Genomics/Proteomics Initiative (RSGI)
Deposited on	:	2005-05-17

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/NMRValidationReportHelp
with specific help available everywhere you see the (i) symbol.

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

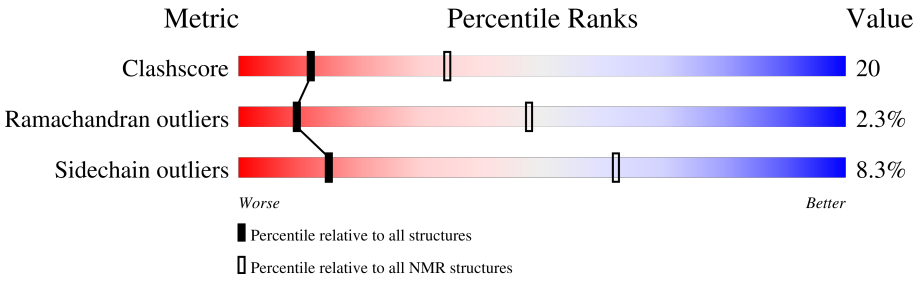
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.27
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.27

1 Overall quality at a glance (i)

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

The overall completeness of chemical shifts assignment was not calculated.

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 <=5%

Mol	Chain	Length	Quality of chain
1	A	125	38% 27% • 34%

2 Ensemble composition and analysis (i)

This entry contains 20 models. Model 16 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:8-A:40, A:50-A:68, A:73-A:89, A:106-A:119 (83)	0.18	16

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

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

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

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

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 1870 atoms, of which 916 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Protein kinase C, D2 type.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	125	1870	595	916	170	184	5	0

There are 13 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	cloning artifact	UNP Q9BZL6
A	2	SER	-	cloning artifact	UNP Q9BZL6
A	3	SER	-	cloning artifact	UNP Q9BZL6
A	4	GLY	-	cloning artifact	UNP Q9BZL6
A	5	SER	-	cloning artifact	UNP Q9BZL6
A	6	SER	-	cloning artifact	UNP Q9BZL6
A	7	GLY	-	cloning artifact	UNP Q9BZL6
A	120	SER	-	cloning artifact	UNP Q9BZL6
A	121	GLY	-	cloning artifact	UNP Q9BZL6
A	122	PRO	-	cloning artifact	UNP Q9BZL6
A	123	SER	-	cloning artifact	UNP Q9BZL6
A	124	SER	-	cloning artifact	UNP Q9BZL6
A	125	GLY	-	cloning artifact	UNP Q9BZL6

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: Protein kinase C, D2 type

Chain A: 38% 27% • 34%

G1 S2 S3 G4 S5 S6 G7 R10 E11 V15 H16 Y17 S18 N19 L23 R24 K25 R26 H27 R30 L31 I36 T37 L38 F39 Q40 N41 N42 T43 T44 N45 R46 Y47 Y48 K49 L53 S54 E55 T58 V59 Q63 L67 V68 P69 P70 G71 T72 N73 P74 H75 C76

F77 E78 I79 V80 T81 F87 E90 M91 P92 G93 G94 T95 P96 G97 G98 P99 S100 G101 Q102 G103 A104 E105 A106 W110 I114 R115 Q116 A117 L118 M119 S120 G121 P122 S123 S124 G125

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: Protein kinase C, D2 type

Chain A: 38% 25% • 34%

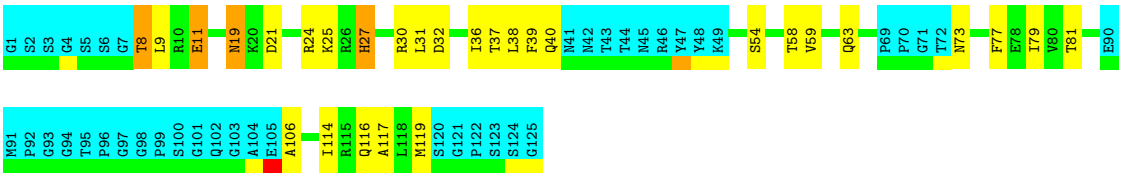
G1 S2 S3 G4 S5 S6 G7 T8 L9 R10 E11 Y17 S18 N19 L23 R24 K25 R26 H27 R30 L31 T37 L38 F39 Q40 N41 N42 T43 T44 N45 R46 Y47 Y48 K49 E50 I51 P52 L53 T58 V59 Q63 L67 V68 P69 P70 G71 T72 N73 F77 E78 I79 V80

T81 F87 E90 M91 P92 G93 G94 T95 P96 G97 G98 P99 S100 G101 Q102 G103 A104 E105 A106 W110 I114 R115 Q116 A117 L118 M119 S120 G121 P122 S123 S124 G125

4.2.2 Score per residue for model 2

• Molecule 1: Protein kinase C, D2 type

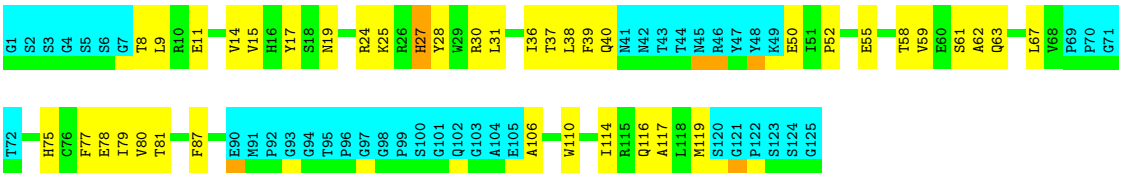
Chain A: 43% 20% • 34%



4.2.3 Score per residue for model 3

- Molecule 1: Protein kinase C, D2 type

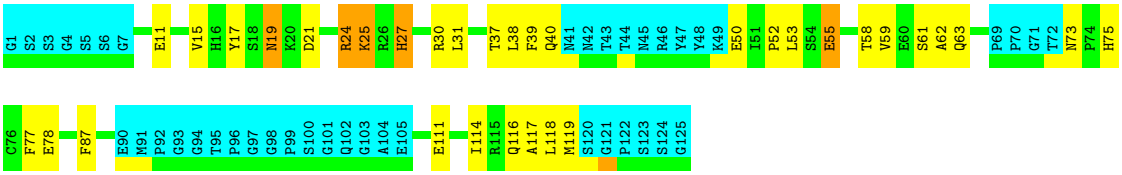
Chain A: 34% 31% • 34%



4.2.4 Score per residue for model 4

- Molecule 1: Protein kinase C, D2 type

Chain A: 39% 23% • 34%



4.2.5 Score per residue for model 5

- Molecule 1: Protein kinase C, D2 type

Chain A: 38% 26% • 34%

4.2.6 Score per residue for model 6

- Molecule 1: Protein kinase C, D2 type

Chain A: 34% 29% • 34%

G1 S2 S3 G4 S5 S6 G7 T8 L9 V15 H16 Y17 S18 N19 K20 D21 T22 L23 R24 K25 R26 H27 R30 L31 T37 L38 F39 Q40 N41 N42 T43 T44 N45 R46 Y47 Y48 K49 E50 I51 P52 L53 S54 E55 T58 V59 A62 Q63 L67 V68 P69 P70 G71 T72 N73

P74 H75 C76 F77 E78 I79 V80 T81 F87 E90 M91 P92 G93 G94 T95 P96 G97 G98 P99 S100 G101 Q102 G103 A104 E105 W110 E111 I114 R115 Q116 A117 L118 M119 S120 G121 P122 S123 S124 G125

4.2.7 Score per residue for model 7

- Molecule 1: Protein kinase C, D2 type

Chain A: 38% 26% • 34%

G1 S2 S3 G4 S5 S6 G7 R10 W13 Y17 S18 N19 L23 R24 K25 R26 H27 R30 L31 I36 T37 L38 F39 Q40 N41 N42 T43 T44 N45 R46 Y47 Y48 K49 E50 L53 T58 V59 Q63 L67 V68 P69 P70 G71 T72 N73 P74 H75 C76 F77 E78

I79 V80 T85 Y86 F87 E90 M91 P92 G93 G94 T95 P96 G97 G98 P99 S100 G101 Q102 G103 A104 E105 A106 A107 W110 I114 R115 Q116 A117 L118 M119 S120 G121 P122 S123 S124 G125

4.2.8 Score per residue for model 8

- Molecule 1: Protein kinase C, D2 type

Chain A: 35% 30% • 34%

G1 S2 S3 G4 S5 S6 G7 V14 V15 H16 Y17 S18 N19 K20 D21 T22 L23 R24 K25 R26 H27 Y28 W29 R30 L31 D32 I36 F39 Q40 N41 N42 T43 T44 N45 R46 Y47 Y48 K49 E50 I51 P52 L53 S54 E55 T58 V59 A62 Q63 N64 F65 S66 L67 V68 P69 P70

G71 T72 N73 P74 H75 C76 F77 E78 I79 V80 T81 F87 E90 M91 P92 G93 G94 T95 P96 G97 G98 P99 S100 G101 Q102 G103 A104 E105 A106 I114 R115 Q116 A117 L118 M119 S120 G121 P122 S123 S124 G125

4.2.9 Score per residue for model 9

- Molecule 1: Protein kinase C, D2 type

Chain A: 42% 22% • • 34%

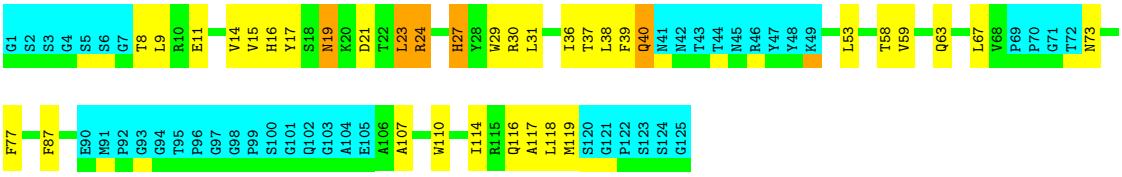
G1 S2 S3 G4 S5 S6 G7 T8 L9 R10 W13 V14 V15 H16 Y17 S18 N19 R24 H27 Y28 W29 R30 L31 I36 T37 L38 F39 Q40 N41 N42 T43 T44 N45 R46 Y47 Y48 K49 E50 I51 P52 L53 T58 V59 A62 Q63 N64 F65 P69 P70 G71 T72 N73

F77 V80 F87 E90 M91 P92 G93 G94 T95 P96 G97 G98 P99 S100 G101 Q102 G103 A104 E105 A106 W110 I114 R115 Q116 A117 L118 M119 S120 G121 P122 S123 S124 G125

4.2.10 Score per residue for model 10

- Molecule 1: Protein kinase C, D2 type

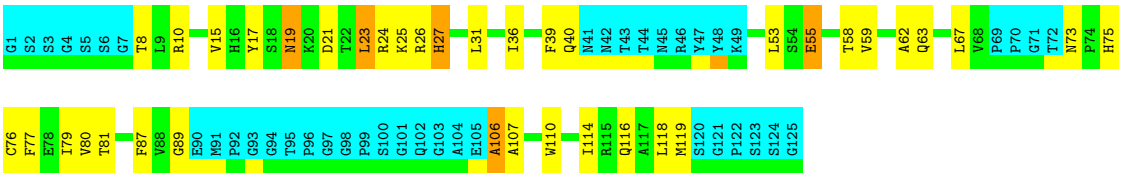
Chain A: 38% 24% • 34%



4.2.11 Score per residue for model 11

- Molecule 1: Protein kinase C, D2 type

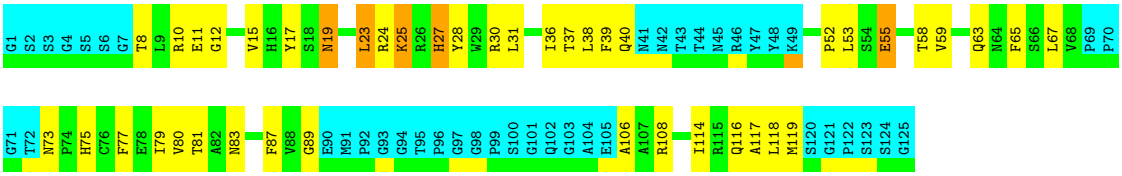
Chain A: 36% 26% • 34%



4.2.12 Score per residue for model 12

- Molecule 1: Protein kinase C, D2 type

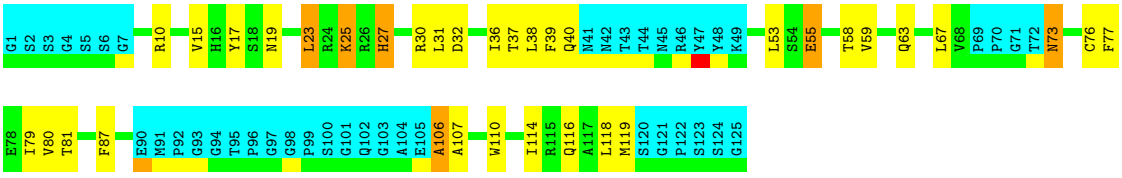
Chain A: 32% 30% • 34%



4.2.13 Score per residue for model 13

- Molecule 1: Protein kinase C, D2 type

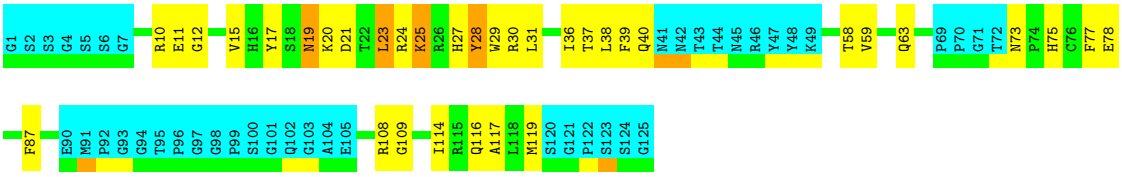
Chain A: 38% 23% 5% 34%



4.2.14 Score per residue for model 14

- Molecule 1: Protein kinase C, D2 type

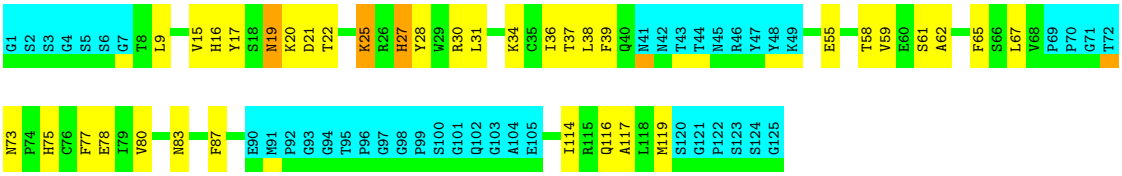
Chain A: 38% 25% • 34%



4.2.15 Score per residue for model 15

- Molecule 1: Protein kinase C, D2 type

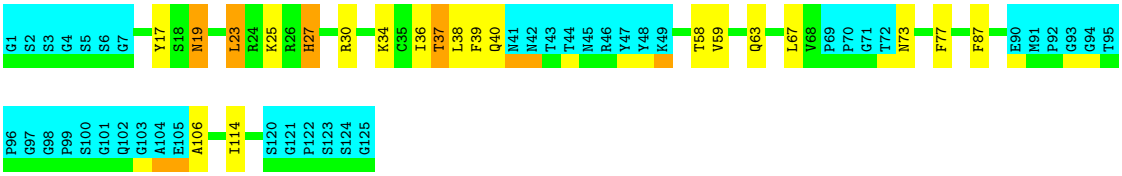
Chain A: 38% 26% • 34%



4.2.16 Score per residue for model 16 (medoid)

- Molecule 1: Protein kinase C, D2 type

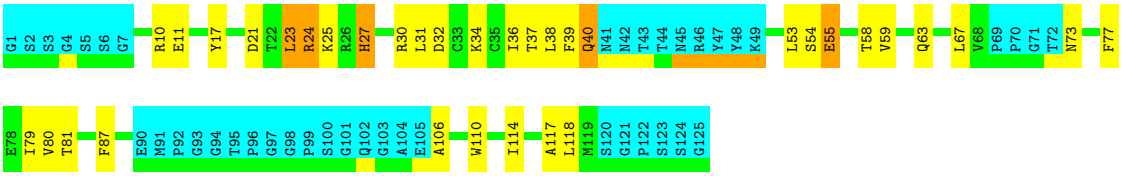
Chain A: 50% 14% • 34%



4.2.17 Score per residue for model 17

- Molecule 1: Protein kinase C, D2 type

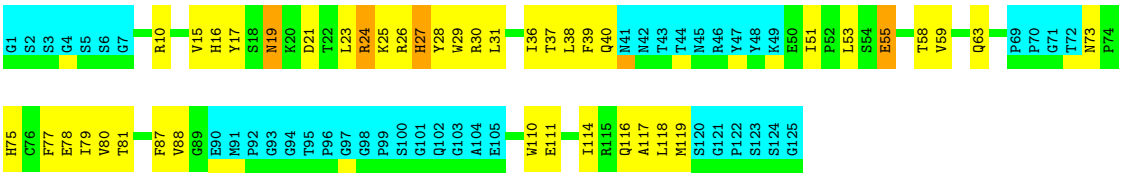
Chain A: 38% 24% • 34%



4.2.18 Score per residue for model 18

- Molecule 1: Protein kinase C, D2 type

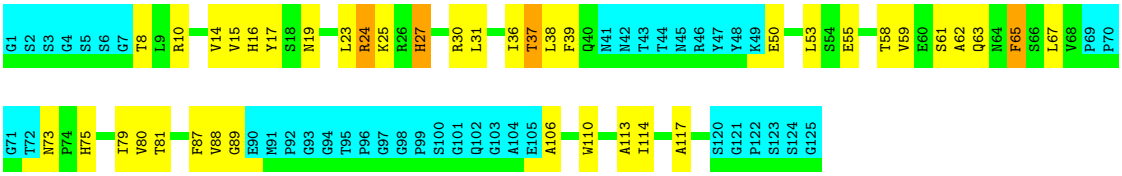
Chain A: 33% 30% • 34%



4.2.19 Score per residue for model 19

- Molecule 1: Protein kinase C, D2 type

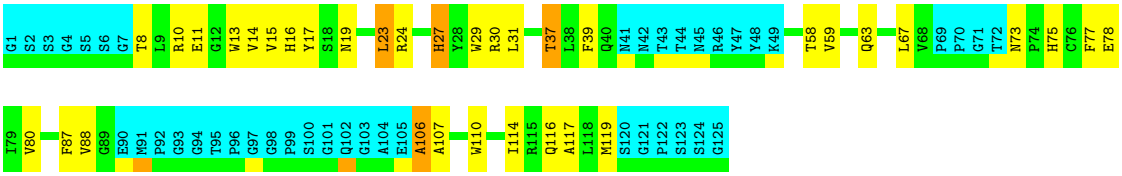
Chain A: 34% 29% • 34%



4.2.20 Score per residue for model 20

- Molecule 1: Protein kinase C, D2 type

Chain A: 38% 25% • 34%



5 Refinement protocol and experimental data overview (i)

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

Of the 100 calculated structures, 20 were deposited, based on the following criterion: *target function,structures with the least restraint violations*.

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

Software name	Classification	Version
CYANA	structure solution	2.0.17
CYANA	refinement	2.0.17

No chemical shift data was provided.

6 Model quality (i)

6.1 Standard geometry (i)

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts (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	680	674	671	26±5
All	All	13600	13480	13420	527

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 20.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:23:LEU:HD13	1:A:25:LYS:HE2	0.72	1.61	11	5
1:A:67:LEU:CD1	1:A:87:PHE:CE2	0.71	2.74	8	1
1:A:21:ASP:OD1	1:A:23:LEU:HD21	0.71	1.86	6	1
1:A:23:LEU:HD13	1:A:25:LYS:HE3	0.70	1.64	14	2
1:A:15:VAL:HG12	1:A:89:GLY:O	0.69	1.88	11	1
1:A:36:ILE:HD11	1:A:114:ILE:HG23	0.67	1.66	14	12
1:A:17:TYR:CE1	1:A:24:ARG:NH1	0.67	2.63	9	1
1:A:23:LEU:HD13	1:A:25:LYS:CE	0.67	2.18	13	6
1:A:17:TYR:CE1	1:A:87:PHE:CB	0.66	2.78	18	16
1:A:17:TYR:CZ	1:A:87:PHE:CB	0.66	2.79	10	17
1:A:31:LEU:HD11	1:A:117:ALA:CB	0.66	2.20	20	9
1:A:53:LEU:HD13	1:A:117:ALA:O	0.64	1.91	17	2
1:A:38:LEU:C	1:A:39:PHE:CD1	0.63	2.71	6	12
1:A:19:ASN:HB2	1:A:67:LEU:HD21	0.62	1.70	5	4

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:27:HIS:CD2	1:A:27:HIS:N	0.62	2.66	16	19
1:A:67:LEU:HD12	1:A:87:PHE:CE2	0.60	2.32	8	1
1:A:38:LEU:O	1:A:39:PHE:CD1	0.60	2.54	5	8
1:A:67:LEU:HD12	1:A:87:PHE:CZ	0.59	2.32	8	5
1:A:53:LEU:HD13	1:A:118:LEU:HA	0.59	1.75	7	6
1:A:76:CYS:SG	1:A:77:PHE:CD1	0.58	2.95	11	1
1:A:77:PHE:CE2	1:A:114:ILE:HD12	0.58	2.33	9	17
1:A:53:LEU:HD22	1:A:118:LEU:HB2	0.58	1.76	10	11
1:A:17:TYR:CE1	1:A:87:PHE:HB3	0.58	2.34	18	12
1:A:21:ASP:OD2	1:A:23:LEU:HD11	0.57	1.99	6	1
1:A:17:TYR:CE1	1:A:87:PHE:HB2	0.57	2.35	17	16
1:A:62:ALA:HB1	1:A:65:PHE:CE2	0.56	2.36	9	3
1:A:14:VAL:HG21	1:A:110:TRP:NE1	0.56	2.16	20	1
1:A:67:LEU:CD1	1:A:87:PHE:CZ	0.56	2.89	8	8
1:A:11:GLU:CD	1:A:11:GLU:N	0.56	2.59	20	1
1:A:8:THR:HG23	1:A:31:LEU:O	0.55	2.01	12	4
1:A:9:LEU:CD1	1:A:117:ALA:HB2	0.55	2.32	3	5
1:A:23:LEU:O	1:A:24:ARG:C	0.54	2.45	19	5
1:A:58:THR:CG2	1:A:59:VAL:N	0.54	2.71	5	20
1:A:8:THR:HG23	1:A:32:ASP:OD1	0.54	2.02	2	1
1:A:58:THR:HG22	1:A:59:VAL:N	0.54	2.17	13	7
1:A:31:LEU:HD13	1:A:36:ILE:HG12	0.54	1.80	15	13
1:A:29:TRP:NE1	1:A:38:LEU:HD21	0.53	2.18	18	1
1:A:79:ILE:O	1:A:81:THR:HG23	0.53	2.04	19	11
1:A:17:TYR:CZ	1:A:87:PHE:HB3	0.52	2.39	10	8
1:A:30:ARG:O	1:A:37:THR:N	0.52	2.43	4	17
1:A:65:PHE:CE2	1:A:75:HIS:CE1	0.52	2.97	5	1
1:A:21:ASP:O	1:A:22:THR:C	0.51	2.48	6	3
1:A:65:PHE:CE1	1:A:75:HIS:CE1	0.51	2.99	12	1
1:A:62:ALA:HB2	1:A:75:HIS:O	0.51	2.06	19	2
1:A:17:TYR:CD1	1:A:24:ARG:HD3	0.51	2.41	18	1
1:A:8:THR:CG2	1:A:10:ARG:O	0.51	2.59	11	3
1:A:78:GLU:OE2	1:A:87:PHE:CE2	0.50	2.64	6	1
1:A:118:LEU:HD12	1:A:118:LEU:O	0.50	2.06	17	2
1:A:17:TYR:CZ	1:A:87:PHE:HB2	0.50	2.41	13	7
1:A:21:ASP:OD1	1:A:23:LEU:CD2	0.50	2.59	6	1
1:A:52:PRO:CG	1:A:55:GLU:OE2	0.50	2.59	6	4
1:A:50:GLU:OE2	1:A:52:PRO:N	0.50	2.45	3	2
1:A:62:ALA:CB	1:A:75:HIS:O	0.50	2.59	11	3
1:A:77:PHE:CE2	1:A:114:ILE:CD1	0.50	2.94	9	2
1:A:76:CYS:SG	1:A:107:ALA:CB	0.49	3.00	5	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:116:GLN:O	1:A:119:MET:CG	0.49	2.60	5	17
1:A:23:LEU:HD12	1:A:23:LEU:H	0.49	1.68	5	4
1:A:39:PHE:O	1:A:40:GLN:C	0.49	2.51	7	15
1:A:75:HIS:CD2	1:A:78:GLU:HG3	0.49	2.43	20	8
1:A:55:GLU:N	1:A:55:GLU:OE1	0.49	2.45	17	4
1:A:25:LYS:HB2	1:A:27:HIS:CE1	0.49	2.42	14	1
1:A:17:TYR:O	1:A:87:PHE:N	0.49	2.46	11	2
1:A:10:ARG:HB3	1:A:110:TRP:CZ3	0.49	2.43	20	3
1:A:14:VAL:CG1	1:A:88:VAL:HG13	0.49	2.37	20	1
1:A:76:CYS:SG	1:A:77:PHE:CE1	0.48	3.01	11	1
1:A:17:TYR:CD1	1:A:87:PHE:HB2	0.48	2.43	17	6
1:A:30:ARG:HD2	1:A:39:PHE:CE1	0.48	2.43	20	11
1:A:10:ARG:CA	1:A:11:GLU:OE2	0.48	2.62	20	1
1:A:17:TYR:CD1	1:A:24:ARG:HG2	0.48	2.42	20	3
1:A:30:ARG:N	1:A:37:THR:O	0.48	2.46	4	4
1:A:13:TRP:CE3	1:A:26:ARG:HD3	0.48	2.44	7	1
1:A:16:HIS:CE1	1:A:25:LYS:HD3	0.48	2.44	15	1
1:A:25:LYS:HG3	1:A:27:HIS:CE1	0.48	2.44	8	7
1:A:12:GLY:HA2	1:A:28:TYR:CE1	0.48	2.44	12	2
1:A:27:HIS:O	1:A:29:TRP:N	0.48	2.47	14	1
1:A:53:LEU:CD1	1:A:117:ALA:O	0.48	2.60	17	1
1:A:67:LEU:HD11	1:A:87:PHE:CZ	0.47	2.44	17	2
1:A:30:ARG:HD3	1:A:39:PHE:CE1	0.47	2.44	15	1
1:A:17:TYR:CD2	1:A:24:ARG:HG2	0.47	2.44	4	1
1:A:65:PHE:CD2	1:A:75:HIS:CE1	0.47	3.03	5	1
1:A:8:THR:CG2	1:A:31:LEU:O	0.47	2.62	20	4
1:A:8:THR:HG22	1:A:10:ARG:O	0.47	2.09	1	1
1:A:21:ASP:CG	1:A:23:LEU:HD11	0.47	2.30	6	1
1:A:14:VAL:HG21	1:A:110:TRP:CE2	0.46	2.45	19	2
1:A:14:VAL:CG2	1:A:110:TRP:NE1	0.46	2.78	20	1
1:A:10:ARG:HG2	1:A:110:TRP:CH2	0.46	2.45	17	1
1:A:10:ARG:HG2	1:A:110:TRP:CZ2	0.46	2.45	11	6
1:A:76:CYS:SG	1:A:107:ALA:HB3	0.46	2.51	7	1
1:A:31:LEU:HD11	1:A:117:ALA:HB3	0.46	1.86	20	2
1:A:19:ASN:O	1:A:19:ASN:CG	0.45	2.54	11	13
1:A:30:ARG:O	1:A:36:ILE:HG23	0.45	2.11	5	4
1:A:14:VAL:CG1	1:A:88:VAL:CG1	0.45	2.93	20	1
1:A:27:HIS:CD2	1:A:38:LEU:HD23	0.45	2.47	18	1
1:A:10:ARG:C	1:A:11:GLU:OE2	0.45	2.55	20	1
1:A:61:SER:O	1:A:62:ALA:C	0.45	2.56	15	4
1:A:86:TYR:C	1:A:87:PHE:CD1	0.45	2.90	5	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:24:ARG:NH2	1:A:73:ASN:O	0.45	2.49	17	2
1:A:77:PHE:CZ	1:A:114:ILE:HD12	0.45	2.47	7	4
1:A:31:LEU:HD12	1:A:32:ASP:N	0.45	2.27	17	1
1:A:19:ASN:OD1	1:A:19:ASN:C	0.44	2.55	8	1
1:A:62:ALA:HB1	1:A:65:PHE:CE1	0.44	2.48	8	1
1:A:10:ARG:C	1:A:11:GLU:CD	0.44	2.76	20	1
1:A:76:CYS:CB	1:A:107:ALA:HB1	0.44	2.42	11	1
1:A:24:ARG:NH2	1:A:74:PRO:O	0.44	2.50	6	1
1:A:25:LYS:HB3	1:A:27:HIS:CE1	0.44	2.47	19	1
1:A:23:LEU:CD1	1:A:25:LYS:CE	0.44	2.96	13	1
1:A:16:HIS:CB	1:A:88:VAL:HG22	0.44	2.42	20	3
1:A:16:HIS:CE1	1:A:25:LYS:HE3	0.43	2.48	8	1
1:A:38:LEU:HD11	1:A:51:ILE:HD12	0.43	1.89	9	1
1:A:31:LEU:HD13	1:A:36:ILE:CG1	0.43	2.43	8	3
1:A:15:VAL:O	1:A:88:VAL:HG13	0.43	2.14	5	1
1:A:15:VAL:HG13	1:A:24:ARG:NH1	0.43	2.29	12	1
1:A:17:TYR:CE1	1:A:87:PHE:O	0.43	2.72	10	1
1:A:16:HIS:HB3	1:A:88:VAL:HG22	0.43	1.90	20	1
1:A:78:GLU:OE1	1:A:85:THR:HG21	0.42	2.14	7	1
1:A:17:TYR:CD1	1:A:24:ARG:NH1	0.42	2.86	9	1
1:A:23:LEU:HD12	1:A:23:LEU:N	0.42	2.29	20	1
1:A:15:VAL:HG13	1:A:24:ARG:HH21	0.42	1.74	20	1
1:A:10:ARG:HD3	1:A:110:TRP:CD2	0.42	2.49	1	1
1:A:10:ARG:HG2	1:A:110:TRP:CE2	0.42	2.50	19	1
1:A:38:LEU:O	1:A:39:PHE:CG	0.41	2.73	2	1
1:A:65:PHE:CD1	1:A:65:PHE:N	0.41	2.88	9	1
1:A:31:LEU:CD1	1:A:36:ILE:HG12	0.41	2.45	11	1
1:A:110:TRP:O	1:A:111:GLU:C	0.41	2.58	18	2
1:A:10:ARG:NH1	1:A:113:ALA:HB2	0.41	2.30	19	1
1:A:29:TRP:NE1	1:A:38:LEU:CD2	0.41	2.83	18	1
1:A:65:PHE:CD1	1:A:75:HIS:CE1	0.41	3.08	12	1
1:A:15:VAL:HG22	1:A:16:HIS:N	0.41	2.31	10	1
1:A:78:GLU:OE1	1:A:85:THR:CG2	0.41	2.69	7	1
1:A:27:HIS:CD2	1:A:29:TRP:HE1	0.41	2.34	20	1
1:A:53:LEU:HD22	1:A:118:LEU:CB	0.41	2.45	10	1
1:A:108:ARG:CG	1:A:109:GLY:N	0.41	2.84	14	1
1:A:50:GLU:OE2	1:A:52:PRO:CD	0.41	2.69	3	1
1:A:14:VAL:HB	1:A:29:TRP:CG	0.41	2.51	8	3
1:A:19:ASN:O	1:A:19:ASN:OD1	0.40	2.40	6	1
1:A:21:ASP:O	1:A:21:ASP:OD1	0.40	2.40	11	1
1:A:67:LEU:HD11	1:A:87:PHE:CE2	0.40	2.50	8	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:107:ALA:O	1:A:110:TRP:N	0.40	2.53	10	1
1:A:20:LYS:HG3	1:A:21:ASP:N	0.40	2.31	14	1
1:A:27:HIS:CE1	1:A:38:LEU:HD23	0.40	2.52	16	1
1:A:11:GLU:OE1	1:A:11:GLU:O	0.40	2.39	2	1
1:A:67:LEU:CD1	1:A:87:PHE:CE1	0.40	3.05	6	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	83/125 (66%)	64±2 (77±2%)	17±2 (20±3%)	2±1 (2±1%)	9	48
All	All	1660/2500 (66%)	1286 (77%)	335 (20%)	39 (2%)	9	48

All 6 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	80	VAL	14
1	A	24	ARG	10
1	A	28	TYR	6
1	A	40	GLN	4
1	A	106	ALA	3
1	A	89	GLY	2

6.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	73/102 (72%)	67±1 (92±2%)	6±1 (8±2%)	15	62

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1460/2040 (72%)	1339 (92%)	121 (8%)	15 62

All 21 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	27	HIS	19
1	A	63	GLN	19
1	A	19	ASN	15
1	A	55	GLU	12
1	A	23	LEU	11
1	A	11	GLU	9
1	A	25	LYS	7
1	A	37	THR	6
1	A	21	ASP	5
1	A	34	LYS	3
1	A	26	ARG	2
1	A	54	SER	2
1	A	65	PHE	2
1	A	83	ASN	2
1	A	8	THR	1
1	A	111	GLU	1
1	A	32	ASP	1
1	A	24	ARG	1
1	A	73	ASN	1
1	A	10	ARG	1
1	A	20	LYS	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)

There are no ligands in this entry.

6.7 Other polymers (i)

There are no such molecules in this entry.

6.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

7 Chemical shift validation (i)

No chemical shift data were provided