



Full wwPDB NMR Structure Validation Report ⓘ

Feb 27, 2022 – 11:18 AM EST

PDB ID : 2CZO
Title : Solution Structure of the PX Domain of Bem1p
Authors : Maeda, A.; Ogura, K.; Horiuchi, M.; Kumeta, H.; Fujioka, Y.; Inagaki, F.
Deposited on : 2005-07-14

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 ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) 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

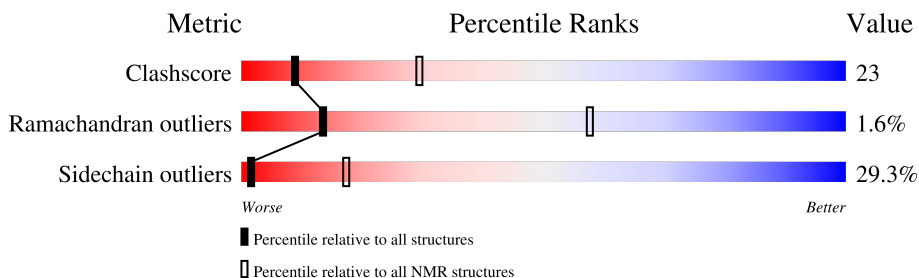
1 Overall quality at a glance

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 $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	155	

2 Ensemble composition and analysis i

This entry contains 20 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:274-A:339, A:348-A:354, A:362-A:399 (111)	0.42	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 4 clusters and 1 single-model cluster was found.

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

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 2107 atoms, of which 1056 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Bud emergence protein 1.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	130	2107	678	1056	174	195	4	0

There are 5 discrepancies between the modelled and reference sequences:

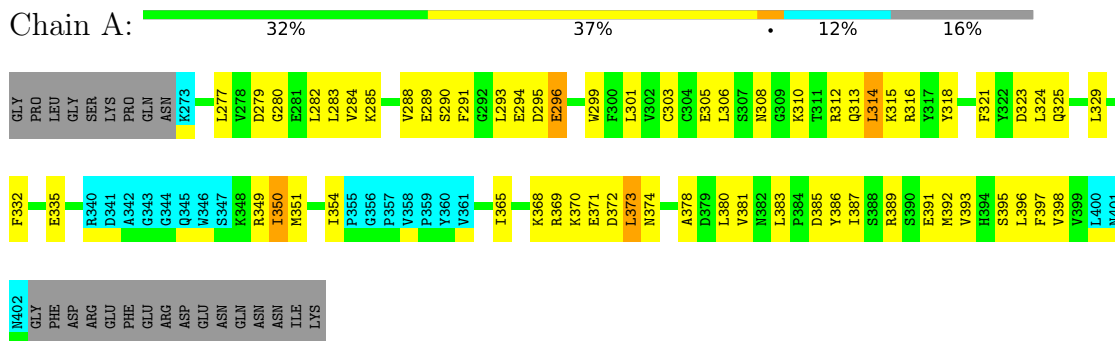
Chain	Residue	Modelled	Actual	Comment	Reference
A	264	GLY	-	cloning artifact	UNP P29366
A	265	PRO	-	cloning artifact	UNP P29366
A	266	LEU	-	cloning artifact	UNP P29366
A	267	GLY	-	cloning artifact	UNP P29366
A	268	SER	-	cloning artifact	UNP P29366

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: Bud emergence protein 1

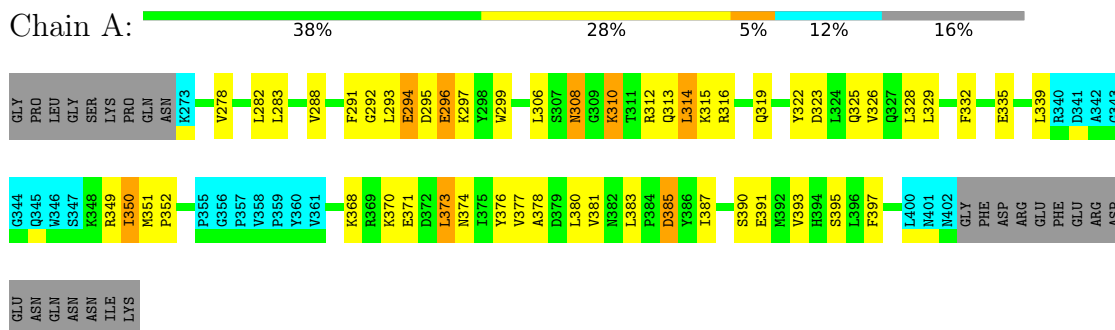


4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

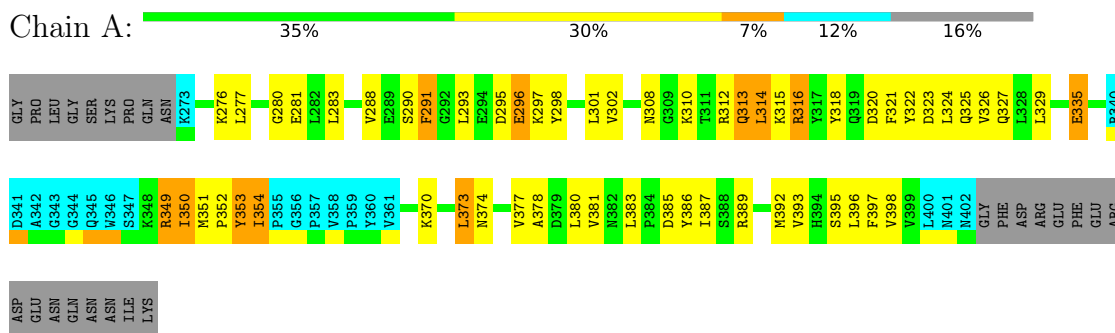
4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: Bud emergence protein 1



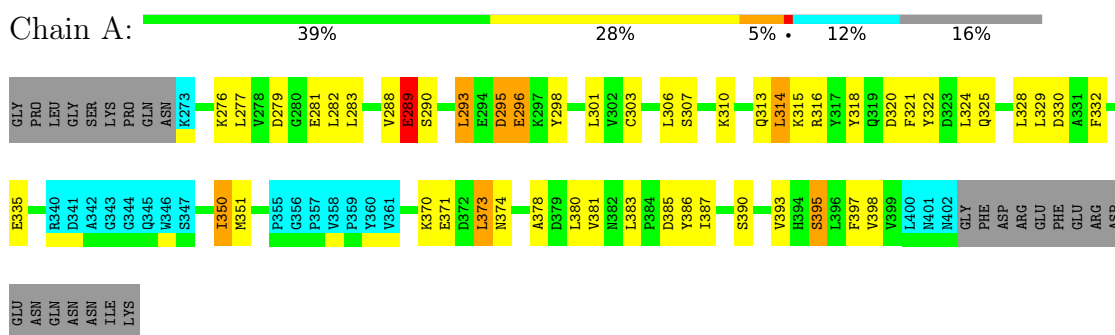
4.2.2 Score per residue for model 2

- Molecule 1: Bud emergence protein 1



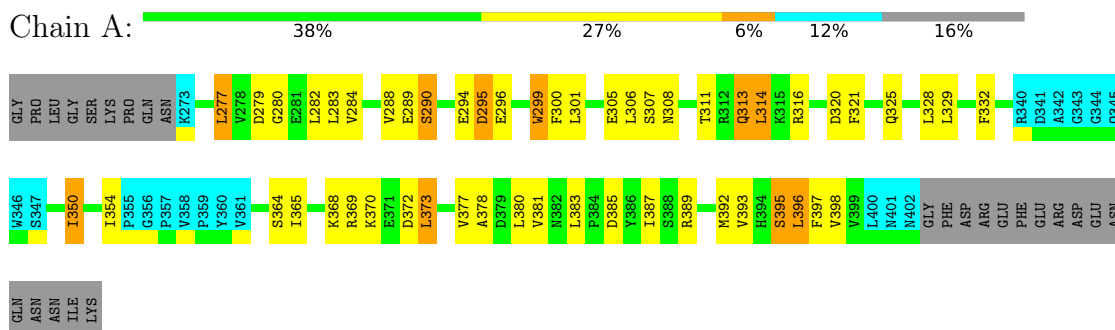
4.2.3 Score per residue for model 3

- Molecule 1: Bud emergence protein 1



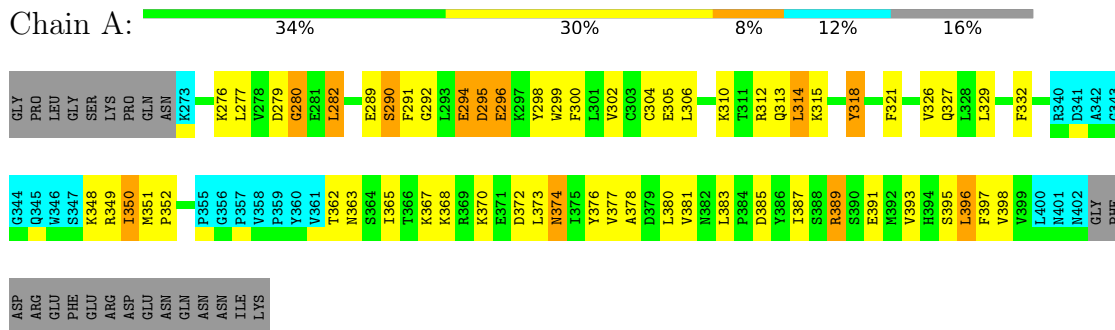
4.2.4 Score per residue for model 4

- Molecule 1: Bud emergence protein 1



4.2.5 Score per residue for model 5

- Molecule 1: Bud emergence protein 1



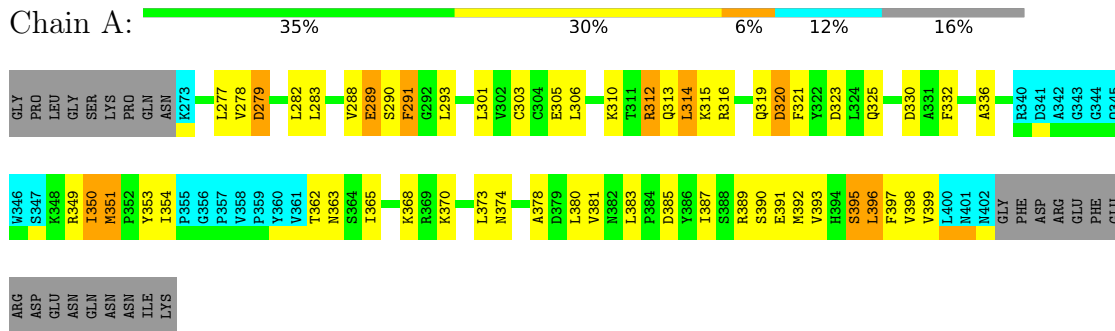
4.2.6 Score per residue for model 6

- Molecule 1: Bud emergence protein 1



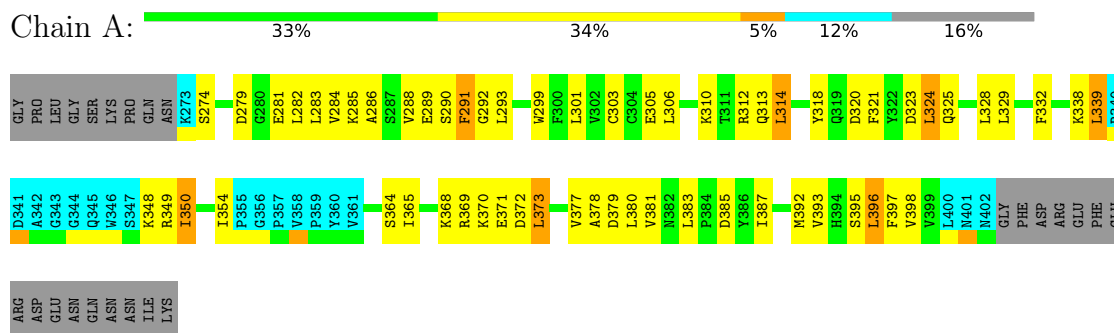
4.2.7 Score per residue for model 7

- Molecule 1: Bud emergence protein 1



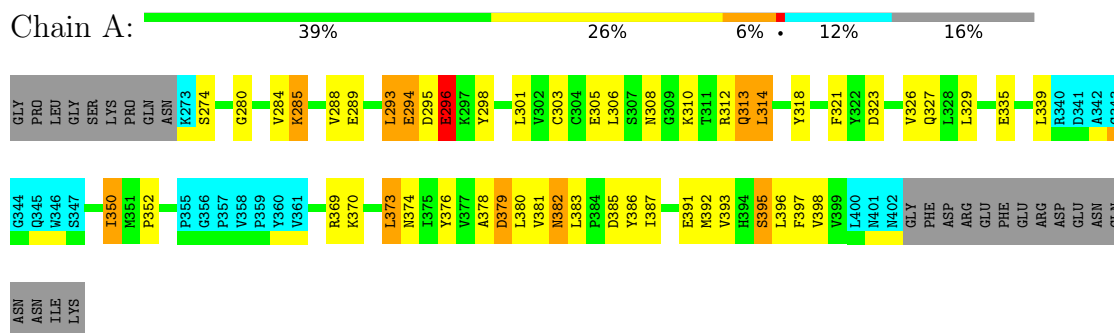
4.2.8 Score per residue for model 8

- Molecule 1: Bud emergence protein 1



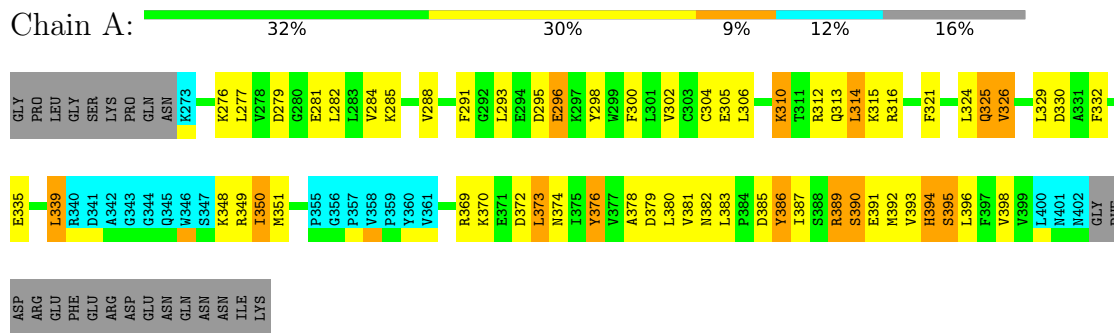
4.2.9 Score per residue for model 9

- Molecule 1: Bud emergence protein 1



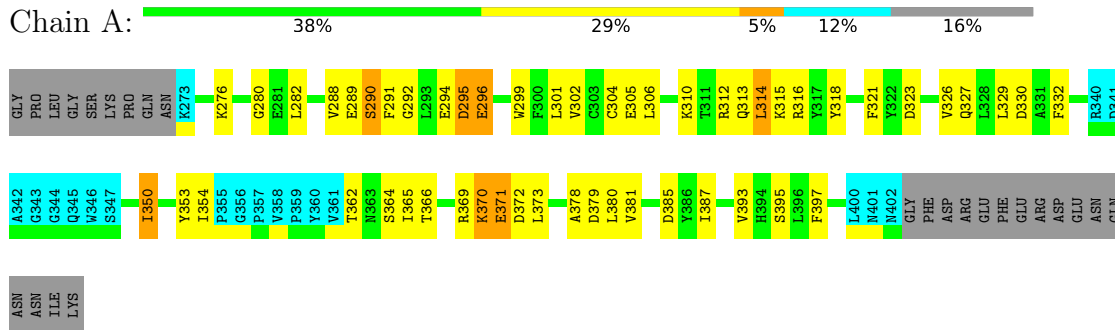
4.2.10 Score per residue for model 10

- Molecule 1: Bud emergence protein 1



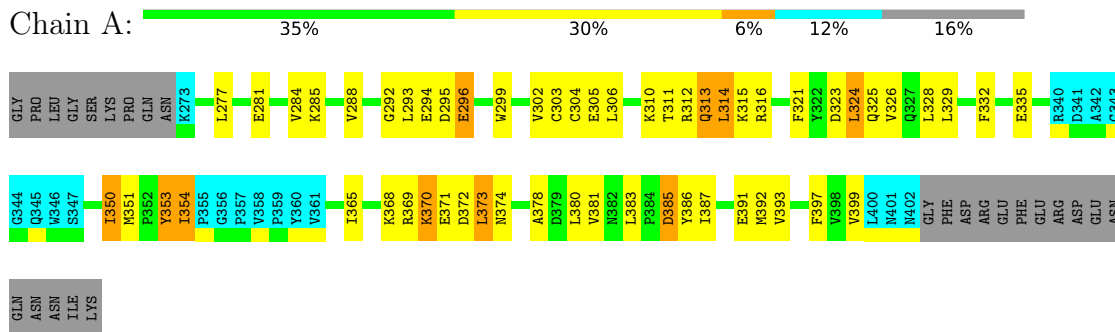
4.2.11 Score per residue for model 11

- Molecule 1: Bud emergence protein 1



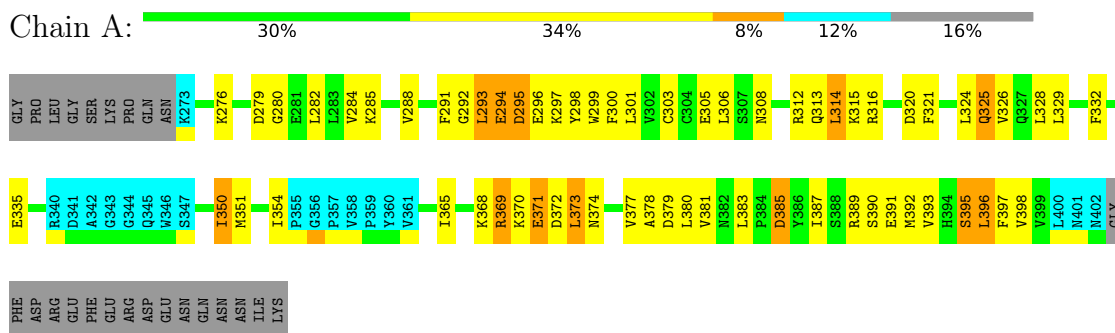
4.2.12 Score per residue for model 12

- Molecule 1: Bud emergence protein 1



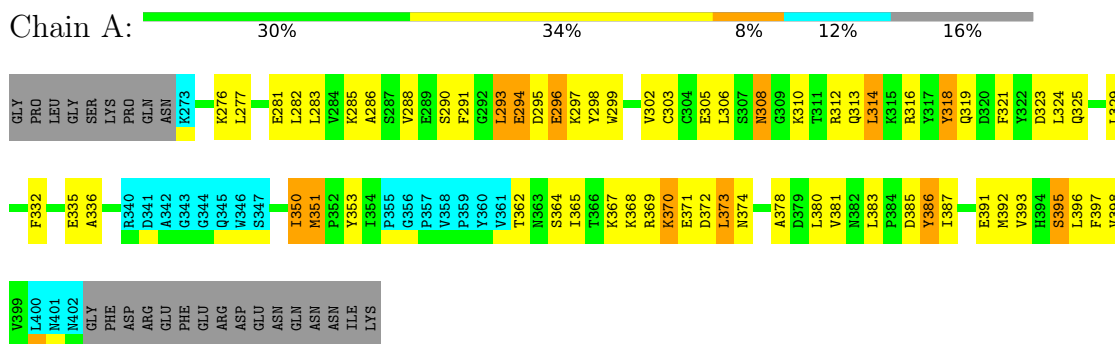
4.2.13 Score per residue for model 13

- Molecule 1: Bud emergence protein 1



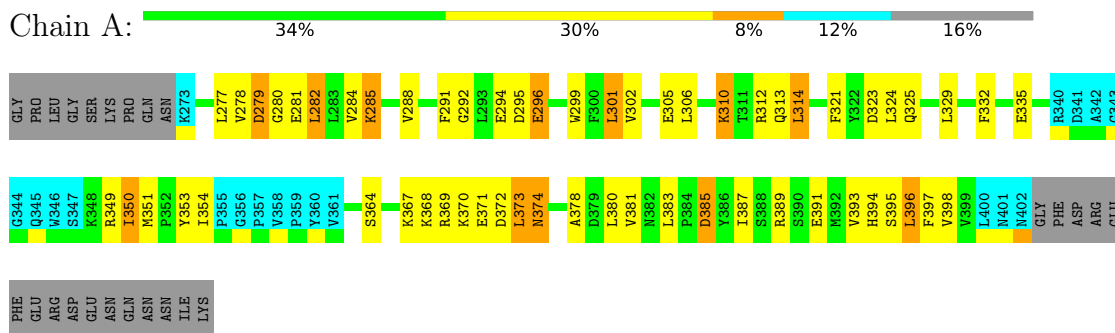
4.2.14 Score per residue for model 14

- Molecule 1: Bud emergence protein 1



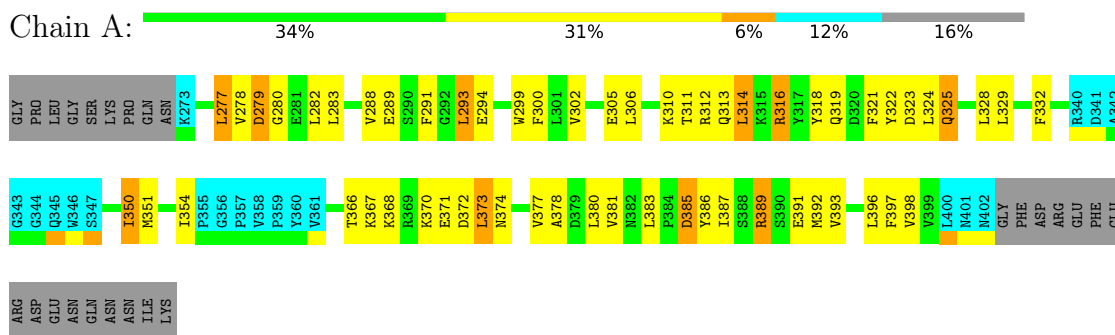
4.2.15 Score per residue for model 15

- Molecule 1: Bud emergence protein 1



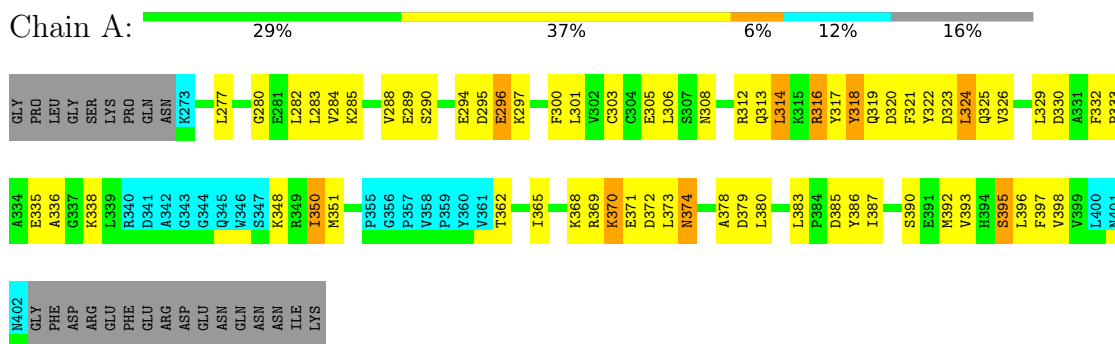
4.2.16 Score per residue for model 16

- Molecule 1: Bud emergence protein 1



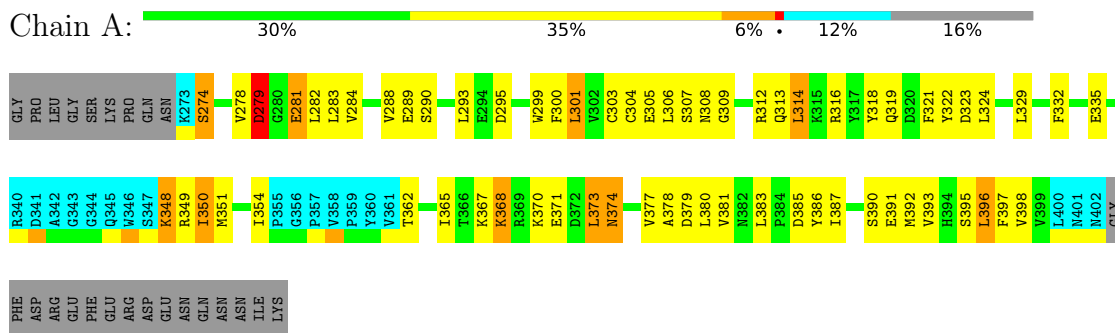
4.2.17 Score per residue for model 17

- Molecule 1: Bud emergence protein 1



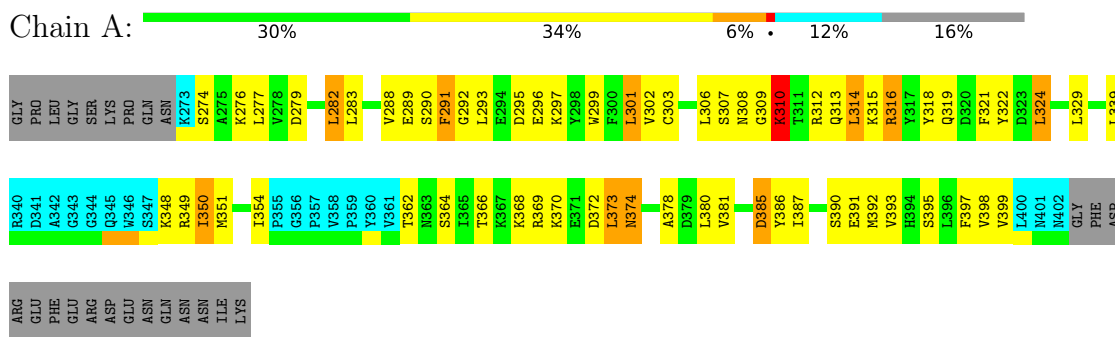
4.2.18 Score per residue for model 18

- Molecule 1: Bud emergence protein 1



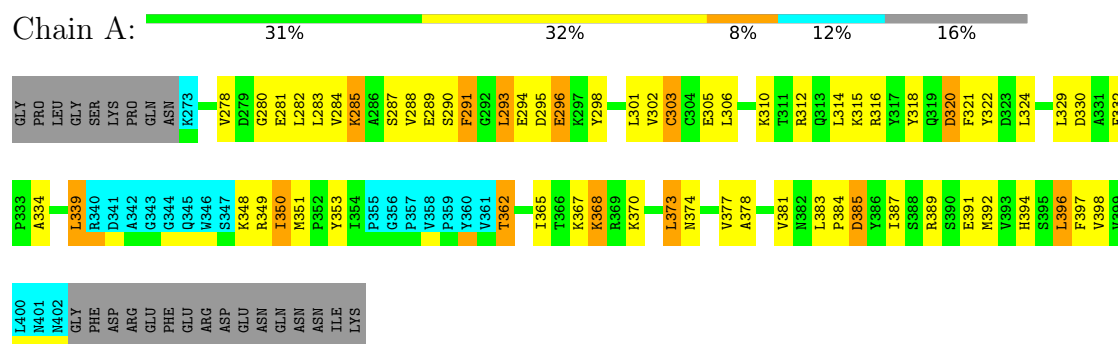
4.2.19 Score per residue for model 19

- Molecule 1: Bud emergence protein 1



4.2.20 Score per residue for model 20

• Molecule 1: Bud emergence protein 1



5 Refinement protocol and experimental data overview

The models were refined using the following method: *distance geometry, simulated annealing, torsion angle dynamics*.

Of the 100 calculated structures, 20 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
CYANA	structure solution	2.0
CYANA	refinement	2.0

No chemical shift data was provided.

6 Model quality

6.1 Standard geometry

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

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in each chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes averaged over the ensemble.

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	A	906	918	918	43±8
All	All	18120	18360	18360	854

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 23.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:321:PHE:CD2	1:A:373:LEU:HD11	0.91	2.00	14	4
1:A:396:LEU:HD22	1:A:396:LEU:O	0.86	1.70	13	2
1:A:288:VAL:HG12	1:A:302:VAL:HG13	0.85	1.49	12	4
1:A:288:VAL:HG22	1:A:302:VAL:HG22	0.81	1.50	2	4
1:A:314:LEU:N	1:A:314:LEU:HD13	0.80	1.92	10	10
1:A:314:LEU:HD22	1:A:314:LEU:N	0.79	1.93	8	8
1:A:321:PHE:CZ	1:A:373:LEU:HD21	0.79	2.13	16	2
1:A:339:LEU:C	1:A:339:LEU:HD22	0.78	1.99	20	2
1:A:354:ILE:HD13	1:A:354:ILE:N	0.77	1.95	12	1
1:A:283:LEU:HD21	1:A:397:PHE:CD2	0.77	2.15	19	2
1:A:306:LEU:HD22	1:A:310:LYS:HD3	0.76	1.58	15	1
1:A:313:GLN:C	1:A:314:LEU:HD13	0.76	2.01	6	16
1:A:314:LEU:HD13	1:A:314:LEU:N	0.76	1.96	6	4
1:A:306:LEU:HD22	1:A:310:LYS:HB3	0.74	1.57	1	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:277:LEU:HD22	1:A:389:ARG:HG3	0.74	1.58	7	1
1:A:380:LEU:HD12	1:A:393:VAL:HG23	0.74	1.59	12	11
1:A:380:LEU:CD1	1:A:393:VAL:HG23	0.73	2.14	12	16
1:A:339:LEU:N	1:A:339:LEU:HD13	0.73	1.98	8	1
1:A:314:LEU:HD22	1:A:314:LEU:H	0.72	1.44	5	7
1:A:288:VAL:HG21	1:A:373:LEU:HB3	0.70	1.62	17	5
1:A:291:PHE:CE2	1:A:366:THR:HG21	0.70	2.21	16	2
1:A:288:VAL:HG21	1:A:373:LEU:HD12	0.70	1.62	9	2
1:A:339:LEU:HD22	1:A:339:LEU:O	0.69	1.86	8	2
1:A:288:VAL:HG13	1:A:301:LEU:O	0.69	1.86	15	8
1:A:313:GLN:O	1:A:314:LEU:HD13	0.68	1.87	16	4
1:A:321:PHE:CE2	1:A:373:LEU:HD11	0.68	2.24	10	3
1:A:306:LEU:N	1:A:306:LEU:HD12	0.68	2.04	13	7
1:A:396:LEU:CD1	1:A:397:PHE:CE1	0.68	2.77	20	3
1:A:321:PHE:CD1	1:A:322:TYR:N	0.68	2.61	18	7
1:A:288:VAL:HG12	1:A:302:VAL:HA	0.68	1.66	20	1
1:A:293:LEU:HD23	1:A:298:TYR:CE1	0.67	2.24	20	6
1:A:396:LEU:HD12	1:A:397:PHE:CE1	0.67	2.25	16	2
1:A:283:LEU:CD1	1:A:397:PHE:CD2	0.67	2.78	4	6
1:A:293:LEU:HD23	1:A:298:TYR:CD2	0.67	2.25	10	2
1:A:293:LEU:HD13	1:A:294:GLU:N	0.66	2.04	13	6
1:A:305:GLU:C	1:A:306:LEU:HD12	0.65	2.12	10	15
1:A:306:LEU:HD22	1:A:310:LYS:CB	0.65	2.21	1	2
1:A:321:PHE:CE2	1:A:373:LEU:HD21	0.65	2.27	16	3
1:A:325:GLN:HG2	1:A:354:ILE:HG21	0.65	1.68	4	1
1:A:306:LEU:HD22	1:A:310:LYS:HB2	0.65	1.67	6	3
1:A:339:LEU:HD13	1:A:339:LEU:H	0.64	1.52	8	2
1:A:277:LEU:HD13	1:A:389:ARG:NE	0.64	2.07	15	1
1:A:395:SER:O	1:A:398:VAL:HG22	0.64	1.93	17	14
1:A:282:LEU:HD13	1:A:389:ARG:NE	0.64	2.08	5	1
1:A:324:LEU:HD21	1:A:392:MET:O	0.64	1.92	17	1
1:A:350:ILE:H	1:A:350:ILE:HD13	0.64	1.53	2	19
1:A:306:LEU:HD12	1:A:306:LEU:N	0.63	2.08	10	3
1:A:318:TYR:O	1:A:321:PHE:CD2	0.63	2.52	17	7
1:A:282:LEU:N	1:A:282:LEU:HD23	0.63	2.09	15	1
1:A:350:ILE:HD13	1:A:350:ILE:O	0.62	1.94	6	1
1:A:324:LEU:HD23	1:A:376:TYR:OH	0.62	1.94	10	1
1:A:277:LEU:HD11	1:A:386:TYR:HB2	0.62	1.72	17	2
1:A:329:LEU:HD12	1:A:329:LEU:O	0.61	1.94	17	1
1:A:291:PHE:C	1:A:291:PHE:CD1	0.61	2.74	20	6
1:A:396:LEU:CD1	1:A:397:PHE:CD1	0.61	2.83	20	3

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:318:TYR:O	1:A:321:PHE:CE2	0.61	2.54	16	7
1:A:324:LEU:HD11	1:A:393:VAL:HA	0.61	1.71	8	2
1:A:396:LEU:O	1:A:396:LEU:HD13	0.61	1.96	16	1
1:A:293:LEU:C	1:A:293:LEU:HD13	0.60	2.16	1	4
1:A:321:PHE:CZ	1:A:373:LEU:HD11	0.60	2.32	10	2
1:A:300:PHE:CZ	1:A:316:ARG:O	0.60	2.55	17	2
1:A:288:VAL:HG11	1:A:373:LEU:HB3	0.60	1.71	12	2
1:A:277:LEU:HD22	1:A:277:LEU:N	0.60	2.10	3	7
1:A:314:LEU:N	1:A:314:LEU:CD2	0.60	2.64	8	4
1:A:292:GLY:O	1:A:299:TRP:CD1	0.59	2.55	5	7
1:A:284:VAL:HG22	1:A:305:GLU:O	0.59	1.97	13	8
1:A:321:PHE:CD2	1:A:373:LEU:HD21	0.59	2.32	2	6
1:A:329:LEU:HD13	1:A:336:ALA:CB	0.59	2.28	17	1
1:A:293:LEU:HD21	1:A:296:GLU:O	0.59	1.98	6	1
1:A:282:LEU:HD23	1:A:282:LEU:H	0.59	1.58	15	1
1:A:293:LEU:HD22	1:A:297:LYS:O	0.59	1.98	13	1
1:A:301:LEU:C	1:A:301:LEU:HD13	0.59	2.17	7	3
1:A:380:LEU:HD13	1:A:393:VAL:CG2	0.58	2.28	17	5
1:A:277:LEU:HD21	1:A:386:TYR:CE2	0.58	2.34	14	1
1:A:283:LEU:HD23	1:A:306:LEU:HD11	0.57	1.76	20	2
1:A:378:ALA:O	1:A:381:VAL:HG22	0.57	1.98	2	18
1:A:306:LEU:N	1:A:306:LEU:CD1	0.57	2.66	13	7
1:A:306:LEU:CD1	1:A:306:LEU:N	0.57	2.67	4	6
1:A:291:PHE:CD1	1:A:299:TRP:O	0.57	2.57	6	1
1:A:339:LEU:N	1:A:339:LEU:CD1	0.57	2.68	8	2
1:A:321:PHE:CE1	1:A:373:LEU:HD11	0.57	2.35	4	1
1:A:314:LEU:HD12	1:A:398:VAL:C	0.57	2.20	4	2
1:A:318:TYR:CD1	1:A:318:TYR:C	0.57	2.77	14	3
1:A:396:LEU:C	1:A:396:LEU:HD13	0.56	2.21	20	2
1:A:383:LEU:CD1	1:A:387:ILE:CG2	0.56	2.84	14	3
1:A:301:LEU:HD11	1:A:313:GLN:HG2	0.56	1.77	8	1
1:A:324:LEU:HD12	1:A:396:LEU:HB2	0.56	1.77	8	1
1:A:321:PHE:CD1	1:A:321:PHE:C	0.56	2.79	2	5
1:A:321:PHE:C	1:A:321:PHE:CD1	0.56	2.78	17	2
1:A:383:LEU:HD12	1:A:387:ILE:CG2	0.56	2.30	4	14
1:A:313:GLN:C	1:A:314:LEU:HD22	0.56	2.21	8	3
1:A:283:LEU:CD2	1:A:397:PHE:CD2	0.56	2.89	14	2
1:A:324:LEU:CD2	1:A:328:LEU:HD11	0.55	2.31	3	1
1:A:398:VAL:HG23	1:A:398:VAL:O	0.55	2.01	14	3
1:A:284:VAL:HG23	1:A:285:LYS:HG2	0.55	1.78	10	2
1:A:299:TRP:CD1	1:A:299:TRP:N	0.55	2.75	4	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:380:LEU:CD1	1:A:393:VAL:CG2	0.55	2.85	17	15
1:A:282:LEU:HD13	1:A:389:ARG:CZ	0.55	2.31	5	1
1:A:374:ASN:C	1:A:374:ASN:ND2	0.55	2.60	18	3
1:A:396:LEU:HD13	1:A:396:LEU:C	0.55	2.22	16	1
1:A:321:PHE:CE1	1:A:396:LEU:HD11	0.54	2.37	4	2
1:A:354:ILE:HG23	1:A:354:ILE:O	0.54	2.02	4	1
1:A:335:GLU:OE2	1:A:387:ILE:HD11	0.54	2.02	18	2
1:A:385:ASP:HB2	1:A:387:ILE:HD12	0.54	1.78	17	4
1:A:383:LEU:HD13	1:A:387:ILE:HD13	0.54	1.79	12	10
1:A:332:PHE:CE2	1:A:387:ILE:HG13	0.54	2.38	8	3
1:A:385:ASP:CB	1:A:387:ILE:HD12	0.54	2.33	1	8
1:A:380:LEU:HD12	1:A:393:VAL:CG2	0.54	2.32	11	11
1:A:306:LEU:HD12	1:A:310:LYS:O	0.54	2.03	19	1
1:A:394:HIS:O	1:A:398:VAL:HG22	0.54	2.03	20	1
1:A:325:GLN:HA	1:A:328:LEU:HD12	0.53	1.81	8	2
1:A:339:LEU:HD13	1:A:339:LEU:N	0.53	2.17	10	1
1:A:396:LEU:HD23	1:A:397:PHE:CE1	0.53	2.38	18	6
1:A:292:GLY:C	1:A:299:TRP:CD1	0.53	2.82	15	3
1:A:291:PHE:CZ	1:A:300:PHE:CD2	0.53	2.96	5	1
1:A:339:LEU:C	1:A:339:LEU:CD2	0.53	2.76	10	2
1:A:362:THR:HG23	1:A:365:ILE:HD12	0.53	1.80	14	1
1:A:353:TYR:C	1:A:354:ILE:HD13	0.53	2.23	12	1
1:A:332:PHE:CE2	1:A:387:ILE:HG12	0.52	2.40	7	6
1:A:293:LEU:CD1	1:A:293:LEU:C	0.52	2.76	16	3
1:A:328:LEU:HD23	1:A:332:PHE:CE1	0.52	2.40	1	4
1:A:292:GLY:C	1:A:299:TRP:NE1	0.52	2.63	13	5
1:A:293:LEU:HD22	1:A:297:LYS:C	0.52	2.25	13	1
1:A:321:PHE:CG	1:A:373:LEU:HD11	0.52	2.39	8	1
1:A:325:GLN:CG	1:A:354:ILE:HG21	0.52	2.34	4	1
1:A:332:PHE:CZ	1:A:387:ILE:HG13	0.52	2.40	17	2
1:A:376:TYR:C	1:A:376:TYR:CD1	0.52	2.83	1	1
1:A:314:LEU:N	1:A:314:LEU:HD22	0.52	2.20	19	4
1:A:283:LEU:CD2	1:A:397:PHE:CE2	0.52	2.92	19	1
1:A:284:VAL:HG23	1:A:285:LYS:HG3	0.51	1.82	15	3
1:A:314:LEU:N	1:A:314:LEU:CD1	0.51	2.67	18	12
1:A:293:LEU:CD2	1:A:298:TYR:CD2	0.51	2.93	10	1
1:A:332:PHE:CE1	1:A:387:ILE:HG12	0.51	2.40	17	1
1:A:380:LEU:HD13	1:A:393:VAL:HG23	0.51	1.81	5	4
1:A:301:LEU:C	1:A:301:LEU:CD1	0.51	2.79	15	2
1:A:373:LEU:O	1:A:377:VAL:HG22	0.51	2.05	20	2
1:A:291:PHE:CE1	1:A:300:PHE:CD2	0.51	2.99	5	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:332:PHE:CE2	1:A:387:ILE:CG1	0.51	2.93	8	3
1:A:395:SER:O	1:A:398:VAL:HG13	0.51	2.06	13	3
1:A:332:PHE:CZ	1:A:387:ILE:CG1	0.50	2.94	10	2
1:A:293:LEU:HD13	1:A:293:LEU:C	0.50	2.26	13	1
1:A:299:TRP:CZ3	1:A:301:LEU:HD23	0.50	2.41	18	1
1:A:301:LEU:HD13	1:A:302:VAL:N	0.50	2.21	15	1
1:A:295:ASP:N	1:A:295:ASP:OD1	0.50	2.43	11	2
1:A:396:LEU:HD13	1:A:397:PHE:CD1	0.50	2.42	20	2
1:A:371:GLU:O	1:A:374:ASN:ND2	0.50	2.45	6	1
1:A:293:LEU:HD23	1:A:298:TYR:CE2	0.50	2.41	3	1
1:A:283:LEU:HD21	1:A:397:PHE:CD1	0.50	2.42	7	1
1:A:390:SER:HB3	1:A:393:VAL:HG12	0.50	1.84	6	2
1:A:324:LEU:HD11	1:A:392:MET:O	0.50	2.06	12	1
1:A:295:ASP:O	1:A:296:GLU:CG	0.50	2.60	4	4
1:A:332:PHE:CD2	1:A:387:ILE:HG12	0.49	2.42	11	4
1:A:326:VAL:HG13	1:A:327:GLN:N	0.49	2.21	5	3
1:A:293:LEU:C	1:A:293:LEU:CD1	0.49	2.81	13	3
1:A:289:GLU:HB2	1:A:301:LEU:HD23	0.49	1.85	3	1
1:A:325:GLN:CD	1:A:325:GLN:C	0.49	2.70	10	4
1:A:333:PRO:O	1:A:338:LYS:CG	0.49	2.61	17	1
1:A:291:PHE:CD1	1:A:291:PHE:O	0.49	2.66	2	1
1:A:294:GLU:O	1:A:295:ASP:CB	0.49	2.60	9	4
1:A:335:GLU:N	1:A:335:GLU:OE1	0.49	2.46	6	1
1:A:288:VAL:CG1	1:A:302:VAL:HG13	0.49	2.37	20	1
1:A:295:ASP:O	1:A:296:GLU:CB	0.49	2.60	1	7
1:A:288:VAL:N	1:A:374:ASN:OD1	0.49	2.45	17	2
1:A:377:VAL:HG23	1:A:378:ALA:N	0.49	2.22	16	8
1:A:274:SER:HB2	1:A:332:PHE:CE1	0.49	2.43	18	1
1:A:308:ASN:OD1	1:A:308:ASN:N	0.49	2.45	1	1
1:A:291:PHE:CD1	1:A:370:LYS:HE2	0.49	2.43	7	1
1:A:300:PHE:CD1	1:A:300:PHE:N	0.49	2.80	5	3
1:A:288:VAL:HG22	1:A:302:VAL:HG13	0.49	1.85	11	1
1:A:283:LEU:HD21	1:A:397:PHE:CE2	0.49	2.43	19	1
1:A:378:ALA:O	1:A:381:VAL:CG2	0.48	2.61	9	19
1:A:318:TYR:CE2	1:A:319:GLN:HG2	0.48	2.43	19	1
1:A:283:LEU:HD13	1:A:397:PHE:CD2	0.48	2.42	4	2
1:A:382:ASN:OD1	1:A:382:ASN:C	0.48	2.51	9	1
1:A:277:LEU:CD2	1:A:277:LEU:N	0.48	2.76	10	2
1:A:279:ASP:OD1	1:A:279:ASP:C	0.48	2.51	16	1
1:A:322:TYR:O	1:A:326:VAL:HG23	0.48	2.08	1	1
1:A:291:PHE:CE1	1:A:300:PHE:HB3	0.48	2.43	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:383:LEU:HD12	1:A:387:ILE:HG21	0.48	1.85	4	2
1:A:277:LEU:N	1:A:277:LEU:HD22	0.48	2.23	10	1
1:A:304:CYS:HB3	1:A:397:PHE:CD2	0.48	2.44	11	3
1:A:352:PRO:HB2	1:A:376:TYR:CE2	0.47	2.43	1	1
1:A:291:PHE:CE2	1:A:366:THR:CG2	0.47	2.97	16	1
1:A:294:GLU:CG	1:A:295:ASP:OD1	0.47	2.62	11	1
1:A:277:LEU:N	1:A:277:LEU:CD2	0.47	2.77	2	6
1:A:283:LEU:HD11	1:A:397:PHE:CD2	0.47	2.44	17	1
1:A:350:ILE:HD11	1:A:384:PRO:CD	0.47	2.39	20	1
1:A:295:ASP:C	1:A:296:GLU:CG	0.47	2.83	12	7
1:A:292:GLY:HA3	1:A:299:TRP:CZ2	0.47	2.45	8	1
1:A:354:ILE:N	1:A:354:ILE:CD1	0.47	2.67	12	1
1:A:326:VAL:CG1	1:A:327:GLN:N	0.47	2.78	9	2
1:A:353:TYR:CD1	1:A:353:TYR:O	0.47	2.67	12	1
1:A:354:ILE:HG23	1:A:369:ARG:NH2	0.47	2.25	13	1
1:A:295:ASP:O	1:A:297:LYS:N	0.47	2.48	19	1
1:A:291:PHE:CE1	1:A:300:PHE:CE2	0.47	3.03	5	1
1:A:339:LEU:HD22	1:A:339:LEU:C	0.47	2.30	8	1
1:A:399:VAL:O	1:A:399:VAL:HG13	0.47	2.08	19	2
1:A:332:PHE:N	1:A:332:PHE:CD1	0.47	2.83	13	2
1:A:293:LEU:HD11	1:A:296:GLU:HA	0.47	1.85	10	1
1:A:281:GLU:CG	1:A:281:GLU:O	0.47	2.62	15	2
1:A:352:PRO:HB2	1:A:376:TYR:CD1	0.47	2.44	5	2
1:A:373:LEU:O	1:A:377:VAL:HG13	0.46	2.10	1	1
1:A:387:ILE:O	1:A:390:SER:CB	0.46	2.63	19	5
1:A:318:TYR:HA	1:A:321:PHE:CE2	0.46	2.46	11	7
1:A:395:SER:O	1:A:398:VAL:CG2	0.46	2.62	17	1
1:A:288:VAL:HG11	1:A:373:LEU:HD12	0.46	1.85	20	2
1:A:362:THR:O	1:A:365:ILE:N	0.46	2.47	18	3
1:A:350:ILE:O	1:A:350:ILE:CD1	0.46	2.63	6	1
1:A:329:LEU:CD1	1:A:336:ALA:CB	0.46	2.93	17	1
1:A:306:LEU:CD1	1:A:310:LYS:O	0.46	2.64	19	1
1:A:352:PRO:HB2	1:A:376:TYR:CE1	0.46	2.45	5	1
1:A:362:THR:O	1:A:363:ASN:C	0.46	2.54	7	2
1:A:321:PHE:CD1	1:A:373:LEU:HD11	0.46	2.45	4	1
1:A:335:GLU:CB	1:A:351:MET:SD	0.46	3.04	6	2
1:A:335:GLU:O	1:A:349:ARG:C	0.46	2.55	18	2
1:A:312:ARG:HG2	1:A:399:VAL:HG13	0.46	1.88	7	1
1:A:348:LYS:O	1:A:350:ILE:HD13	0.46	2.11	19	1
1:A:283:LEU:HD23	1:A:306:LEU:CD1	0.45	2.40	16	3
1:A:353:TYR:O	1:A:354:ILE:CG2	0.45	2.64	2	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:294:GLU:CG	1:A:299:TRP:CD1	0.45	2.99	14	1
1:A:289:GLU:CB	1:A:301:LEU:HD23	0.45	2.41	3	1
1:A:318:TYR:HA	1:A:321:PHE:CD2	0.45	2.46	8	2
1:A:389:ARG:O	1:A:390:SER:C	0.45	2.55	10	1
1:A:278:VAL:O	1:A:280:GLY:N	0.45	2.49	15	1
1:A:288:VAL:CG2	1:A:302:VAL:HG22	0.45	2.35	15	1
1:A:396:LEU:HD22	1:A:396:LEU:C	0.45	2.32	13	1
1:A:294:GLU:C	1:A:295:ASP:OD1	0.45	2.54	20	1
1:A:291:PHE:CZ	1:A:300:PHE:HB3	0.45	2.46	10	1
1:A:386:TYR:C	1:A:386:TYR:CD1	0.45	2.86	14	1
1:A:316:ARG:NH1	1:A:398:VAL:O	0.45	2.50	16	1
1:A:278:VAL:O	1:A:279:ASP:C	0.45	2.55	18	3
1:A:279:ASP:OD1	1:A:280:GLY:N	0.45	2.50	16	1
1:A:318:TYR:CA	1:A:321:PHE:CE2	0.45	3.00	20	2
1:A:325:GLN:OE1	1:A:325:GLN:C	0.45	2.54	13	2
1:A:335:GLU:C	1:A:351:MET:SD	0.45	2.95	6	1
1:A:278:VAL:O	1:A:389:ARG:NH1	0.45	2.50	20	1
1:A:353:TYR:O	1:A:353:TYR:CG	0.45	2.69	7	1
1:A:325:GLN:NE2	1:A:352:PRO:O	0.45	2.50	6	2
1:A:324:LEU:HD22	1:A:396:LEU:HB2	0.45	1.89	20	2
1:A:294:GLU:HG2	1:A:299:TRP:CD1	0.44	2.47	16	2
1:A:283:LEU:CD1	1:A:397:PHE:CD1	0.44	3.00	18	1
1:A:294:GLU:O	1:A:297:LYS:N	0.44	2.50	1	2
1:A:316:ARG:CZ	1:A:320:ASP:OD1	0.44	2.65	7	1
1:A:304:CYS:SG	1:A:397:PHE:CD2	0.44	3.10	5	1
1:A:306:LEU:HD13	1:A:310:LYS:HE2	0.44	1.89	15	1
1:A:362:THR:H	1:A:365:ILE:HD12	0.44	1.72	17	2
1:A:387:ILE:O	1:A:393:VAL:HG11	0.44	2.13	13	1
1:A:324:LEU:CD2	1:A:328:LEU:CD1	0.44	2.96	3	1
1:A:291:PHE:CZ	1:A:300:PHE:CE2	0.44	3.05	5	1
1:A:383:LEU:CD1	1:A:387:ILE:HG21	0.44	2.43	14	1
1:A:383:LEU:HD12	1:A:387:ILE:HB	0.43	1.90	1	4
1:A:354:ILE:CG1	1:A:354:ILE:O	0.43	2.65	2	1
1:A:314:LEU:HD12	1:A:398:VAL:O	0.43	2.14	4	1
1:A:367:LYS:HG2	1:A:368:LYS:N	0.43	2.29	20	1
1:A:292:GLY:HA3	1:A:299:TRP:CE2	0.43	2.48	8	1
1:A:286:ALA:HB1	1:A:397:PHE:CZ	0.43	2.48	14	1
1:A:288:VAL:HG12	1:A:302:VAL:CA	0.43	2.41	20	1
1:A:324:LEU:HD22	1:A:328:LEU:HD11	0.43	1.89	3	1
1:A:289:GLU:HB2	1:A:301:LEU:HD12	0.43	1.90	7	1
1:A:325:GLN:CG	1:A:326:VAL:N	0.43	2.82	10	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:283:LEU:CD2	1:A:306:LEU:HD11	0.43	2.42	20	1
1:A:379:ASP:O	1:A:382:ASN:OD1	0.43	2.37	9	1
1:A:320:ASP:CG	1:A:321:PHE:N	0.43	2.71	20	1
1:A:336:ALA:HB2	1:A:351:MET:HG3	0.43	1.91	14	2
1:A:374:ASN:O	1:A:378:ALA:CB	0.43	2.66	7	2
1:A:398:VAL:O	1:A:398:VAL:CG2	0.43	2.67	14	1
1:A:362:THR:H	1:A:365:ILE:HD13	0.43	1.74	7	1
1:A:335:GLU:OE2	1:A:387:ILE:CD1	0.43	2.67	14	1
1:A:287:SER:O	1:A:303:CYS:CB	0.43	2.66	20	1
1:A:389:ARG:CZ	1:A:389:ARG:HB2	0.42	2.44	4	1
1:A:291:PHE:HB3	1:A:300:PHE:CE1	0.42	2.49	13	1
1:A:396:LEU:HD23	1:A:397:PHE:CZ	0.42	2.49	18	2
1:A:366:THR:O	1:A:370:LYS:CG	0.42	2.66	11	1
1:A:370:LYS:HG2	1:A:371:GLU:N	0.42	2.29	8	6
1:A:332:PHE:CE1	1:A:387:ILE:CG1	0.42	3.02	17	1
1:A:287:SER:O	1:A:303:CYS:N	0.42	2.52	20	1
1:A:328:LEU:HD23	1:A:332:PHE:HE1	0.42	1.73	1	1
1:A:279:ASP:O	1:A:280:GLY:C	0.42	2.58	5	1
1:A:325:GLN:HG3	1:A:326:VAL:N	0.42	2.29	13	1
1:A:396:LEU:HD12	1:A:397:PHE:CZ	0.42	2.49	16	1
1:A:277:LEU:HD12	1:A:389:ARG:HG3	0.42	1.91	10	1
1:A:321:PHE:CD1	1:A:321:PHE:N	0.42	2.87	7	1
1:A:308:ASN:O	1:A:308:ASN:CG	0.42	2.57	9	1
1:A:293:LEU:HD11	1:A:296:GLU:CA	0.42	2.44	10	1
1:A:387:ILE:O	1:A:390:SER:N	0.42	2.53	10	1
1:A:288:VAL:O	1:A:288:VAL:CG2	0.42	2.68	12	1
1:A:374:ASN:OD1	1:A:374:ASN:C	0.42	2.57	15	2
1:A:394:HIS:ND1	1:A:394:HIS:C	0.42	2.73	10	1
1:A:380:LEU:HD23	1:A:380:LEU:N	0.42	2.29	12	1
1:A:277:LEU:HD21	1:A:386:TYR:CD1	0.42	2.48	17	1
1:A:390:SER:O	1:A:393:VAL:HG12	0.42	2.14	18	1
1:A:338:LYS:HB2	1:A:339:LEU:HD13	0.42	1.91	8	1
1:A:293:LEU:HD23	1:A:298:TYR:CD1	0.42	2.49	13	2
1:A:282:LEU:N	1:A:282:LEU:CD2	0.42	2.80	15	1
1:A:377:VAL:CG2	1:A:378:ALA:N	0.42	2.83	1	4
1:A:374:ASN:O	1:A:378:ALA:HB2	0.42	2.15	17	1
1:A:312:ARG:CZ	1:A:312:ARG:HB2	0.41	2.45	5	1
1:A:286:ALA:O	1:A:378:ALA:HB2	0.41	2.14	8	1
1:A:288:VAL:HG12	1:A:302:VAL:CG1	0.41	2.45	20	1
1:A:367:LYS:CG	1:A:368:LYS:N	0.41	2.83	18	1
1:A:294:GLU:O	1:A:295:ASP:C	0.41	2.58	17	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:325:GLN:NE2	1:A:326:VAL:HA	0.41	2.30	10	1
1:A:315:LYS:O	1:A:315:LYS:CG	0.41	2.68	13	1
1:A:334:ALA:HA	1:A:339:LEU:HD13	0.41	1.92	20	1
1:A:339:LEU:HD13	1:A:339:LEU:O	0.41	2.15	20	1
1:A:332:PHE:CD2	1:A:387:ILE:HD11	0.41	2.51	10	1
1:A:293:LEU:HD23	1:A:298:TYR:CZ	0.41	2.50	6	1
1:A:293:LEU:CD2	1:A:296:GLU:O	0.41	2.69	6	1
1:A:383:LEU:CD1	1:A:387:ILE:HB	0.41	2.46	6	3
1:A:370:LYS:CG	1:A:371:GLU:N	0.41	2.84	13	1
1:A:329:LEU:HD12	1:A:329:LEU:C	0.41	2.35	17	1
1:A:301:LEU:HD11	1:A:313:GLN:NE2	0.41	2.31	2	1
1:A:325:GLN:CD	1:A:354:ILE:CG2	0.41	2.89	4	1
1:A:288:VAL:CG2	1:A:373:LEU:HD12	0.41	2.45	1	1
1:A:302:VAL:HG12	1:A:397:PHE:CE2	0.41	2.50	5	1
1:A:324:LEU:CD2	1:A:376:TYR:OH	0.41	2.69	10	1
1:A:279:ASP:CG	1:A:280:GLY:N	0.41	2.74	15	1
1:A:282:LEU:HD11	1:A:307:SER:HB2	0.41	1.92	19	1
1:A:306:LEU:HD13	1:A:310:LYS:HB2	0.41	1.93	5	1
1:A:370:LYS:CE	1:A:371:GLU:N	0.41	2.84	11	1
1:A:396:LEU:O	1:A:396:LEU:HD22	0.41	2.16	16	1
1:A:309:GLY:O	1:A:310:LYS:C	0.41	2.57	19	1
1:A:316:ARG:HB3	1:A:316:ARG:CZ	0.41	2.46	19	1
1:A:376:TYR:CD1	1:A:376:TYR:C	0.41	2.93	10	1
1:A:277:LEU:CD1	1:A:389:ARG:HG3	0.41	2.46	16	1
1:A:385:ASP:HB3	1:A:387:ILE:HD12	0.40	1.92	1	1
1:A:302:VAL:O	1:A:314:LEU:HD22	0.40	2.16	14	1
1:A:353:TYR:C	1:A:353:TYR:CD1	0.40	2.95	20	1
1:A:350:ILE:HD11	1:A:383:LEU:HD22	0.40	1.93	8	1
1:A:354:ILE:O	1:A:354:ILE:HG22	0.40	2.16	13	1
1:A:306:LEU:CB	1:A:308:ASN:OD1	0.40	2.69	14	1
1:A:329:LEU:HD13	1:A:336:ALA:HB2	0.40	1.92	17	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	111/155 (72%)	101±2 (91±2%)	9±2 (8±2%)	2±1 (2±1%)	13	57
All	All	2220/3100 (72%)	2012 (91%)	172 (8%)	36 (2%)	13	57

All 11 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	280	GLY	8
1	A	296	GLU	8
1	A	289	GLU	4
1	A	279	ASP	4
1	A	274	SER	4
1	A	290	SER	3
1	A	390	SER	1
1	A	354	ILE	1
1	A	385	ASP	1
1	A	309	GLY	1
1	A	310	LYS	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	101/138 (73%)	71±3 (71±3%)	30±3 (29±3%)	1	17
All	All	2020/2760 (73%)	1428 (71%)	592 (29%)	1	17

All 72 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	350	ILE	20
1	A	314	LEU	19
1	A	373	LEU	19
1	A	385	ASP	19
1	A	329	LEU	18
1	A	282	LEU	17
1	A	312	ARG	16

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Mol	Chain	Res	Type	Models (Total)
1	A	370	LYS	15
1	A	374	ASN	15
1	A	310	LYS	14
1	A	351	MET	14
1	A	368	LYS	14
1	A	391	GLU	14
1	A	296	GLU	13
1	A	316	ARG	13
1	A	290	SER	13
1	A	396	LEU	13
1	A	323	ASP	12
1	A	392	MET	12
1	A	369	ARG	12
1	A	372	ASP	12
1	A	395	SER	11
1	A	293	LEU	11
1	A	303	CYS	11
1	A	315	LYS	10
1	A	335	GLU	10
1	A	289	GLU	10
1	A	308	ASN	9
1	A	349	ARG	9
1	A	276	LYS	9
1	A	324	LEU	9
1	A	386	TYR	9
1	A	291	PHE	8
1	A	294	GLU	8
1	A	281	GLU	8
1	A	320	ASP	8
1	A	354	ILE	8
1	A	379	ASP	8
1	A	279	ASP	7
1	A	295	ASP	7
1	A	325	GLN	7
1	A	348	LYS	7
1	A	285	LYS	7
1	A	319	GLN	6
1	A	339	LEU	6
1	A	371	GLU	6
1	A	330	ASP	6
1	A	364	SER	6
1	A	389	ARG	5

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Mol	Chain	Res	Type	Models (Total)
1	A	301	LEU	5
1	A	313	GLN	4
1	A	353	TYR	4
1	A	311	THR	4
1	A	367	LYS	4
1	A	307	SER	3
1	A	318	TYR	3
1	A	326	VAL	3
1	A	297	LYS	2
1	A	277	LEU	2
1	A	299	TRP	2
1	A	300	PHE	2
1	A	382	ASN	2
1	A	394	HIS	2
1	A	390	SER	2
1	A	278	VAL	1
1	A	298	TYR	1
1	A	306	LEU	1
1	A	304	CYS	1
1	A	376	TYR	1
1	A	305	GLU	1
1	A	317	TYR	1
1	A	362	THR	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

No chemical shift data were provided