Full wwPDB NMR Structure Validation Report (i)

Oct 31, 2021 – 08:55 AM EDT

PDB ID	:	1XSA
Title	:	Structure of the nudix enzyme AP4A hydrolase from homo sapiens (E63A mutant)
Authors	:	Swarbrick, J.D.; Buyya, S.; Gunawardana, D.; Gayler, K.R.; McLennan, A.G.; Gooley, P.R.
Deposited on	:	2004-10-18

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:

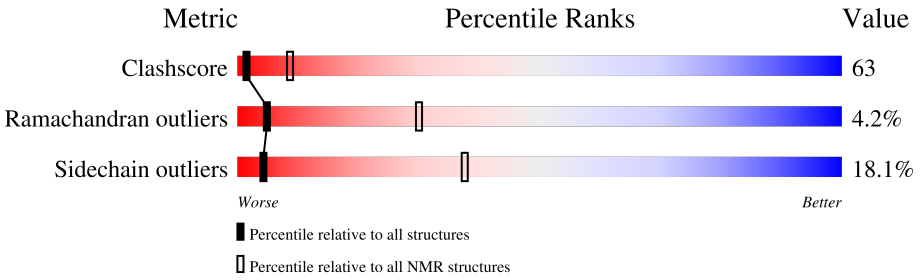
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
RCI	:	v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV	:	Wang et al. (2010)
ShiftChecker	:	2.23.2
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.23.2

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	153	22% 48% 8% • 21%

2 Ensemble composition and analysis (i)

This entry contains 33 models. Model 9 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:9-A:19, A:28-A:37, A:42-A:50, A:55-A:86, A:95-A:153 (121)	0.18	9

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

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

The models can be grouped into 2 clusters. No single-model clusters were found.

Cluster number	Models
1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32
2	31, 33

3 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 2453 atoms, of which 1236 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Bis(5'-nucleosyl)-tetraphosphatase.

Mol	Chain	Residues	Atoms						Trace
			Total	C	H	N	O	S	
1	A	153	2453	775	1236	212	224	6	0

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	GLY	-	cloning artifact	UNP P50583
A	2	PRO	-	cloning artifact	UNP P50583
A	3	LEU	-	cloning artifact	UNP P50583
A	4	GLY	-	cloning artifact	UNP P50583
A	5	SER	-	cloning artifact	UNP P50583
A	63	ALA	GLU	engineered mutation	UNP P50583
A	153	LEU	-	cloning artifact	UNP P50583

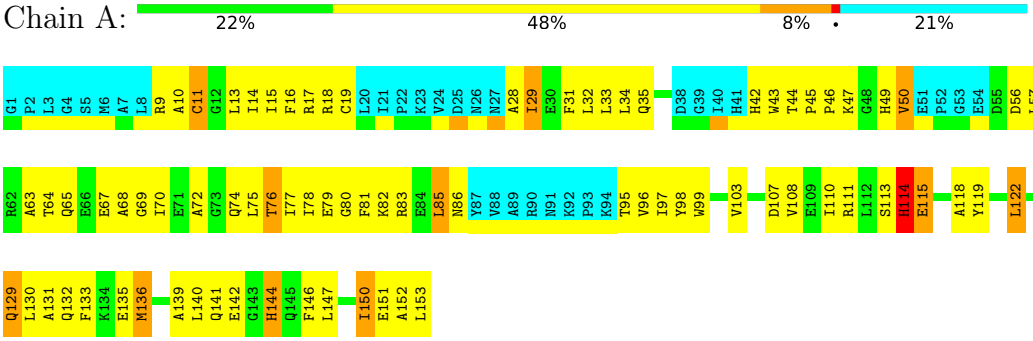
4 Residue-property plots

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: Bis(5'-nucleosyl)-tetraphosphatase

Chain A:



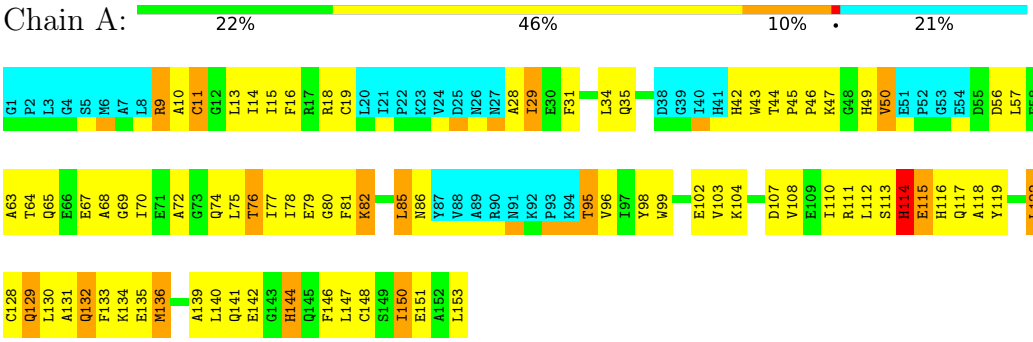
4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

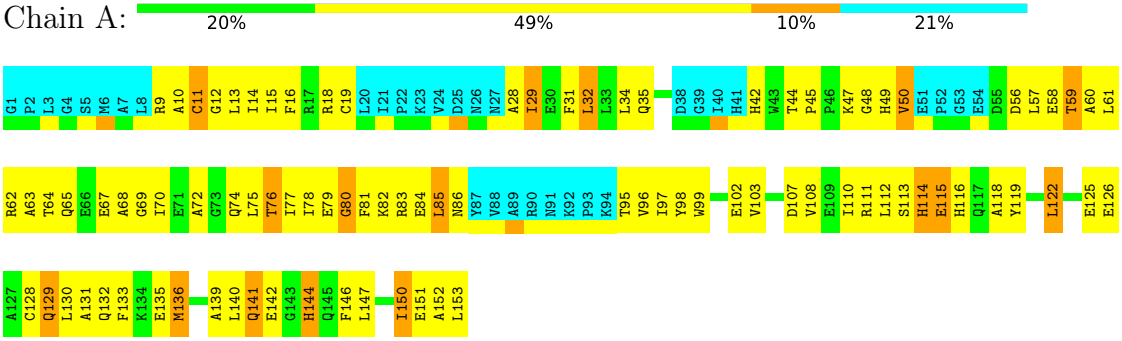
Chain A:



4.2.2 Score per residue for model 2

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

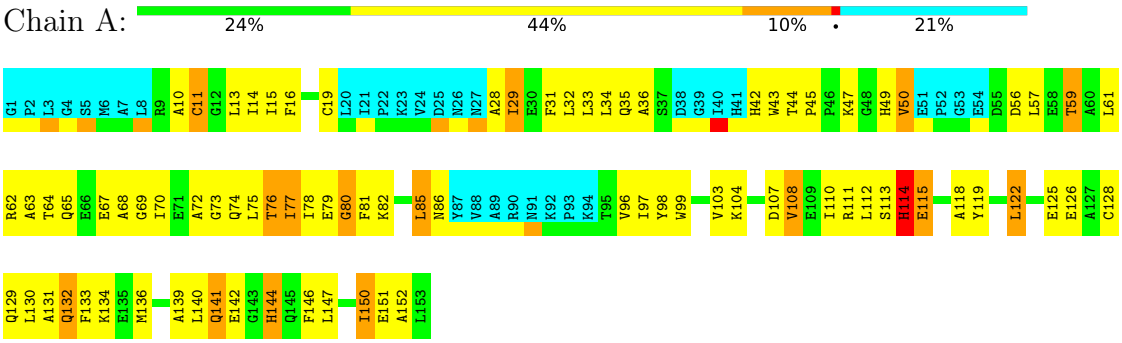
Chain A:



4.2.3 Score per residue for model 3

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

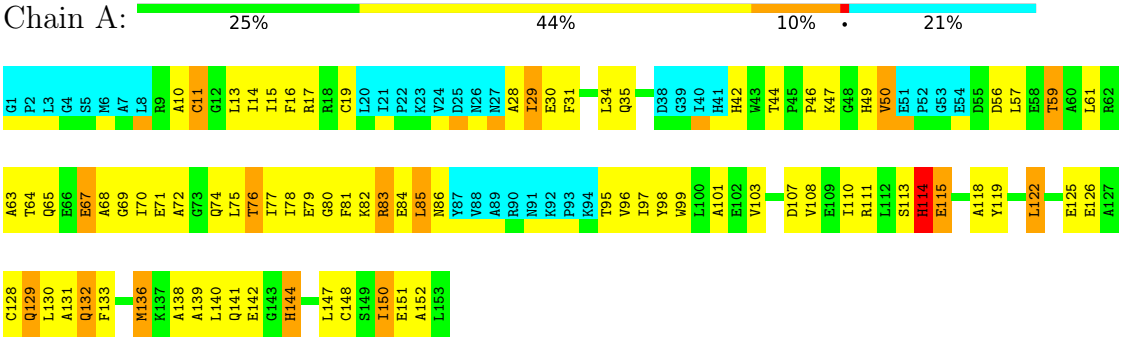
Chain A:



4.2.4 Score per residue for model 4

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

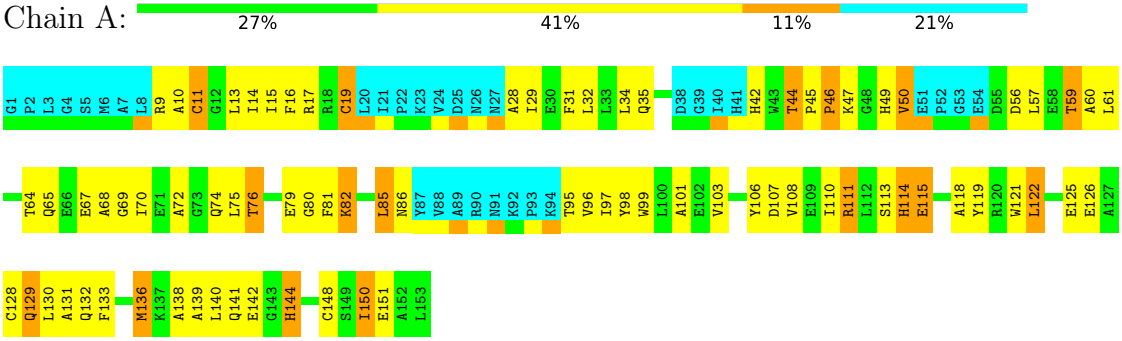
Chain A:



4.2.5 Score per residue for model 5

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

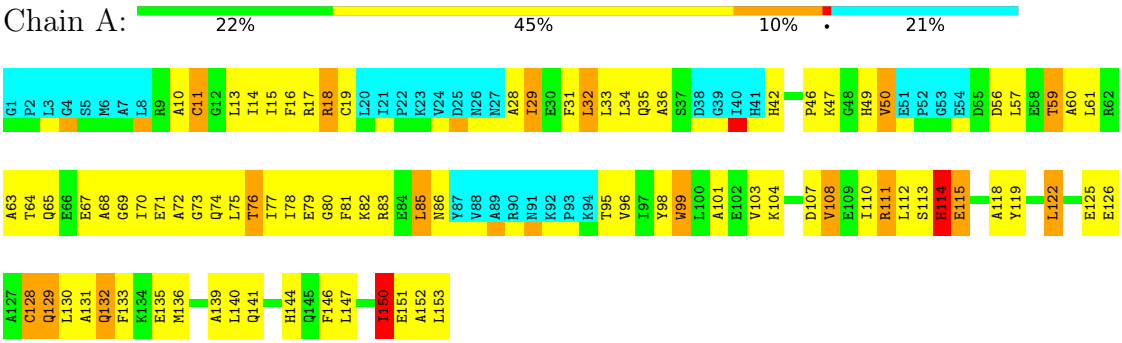
Chain A:



4.2.6 Score per residue for model 6

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

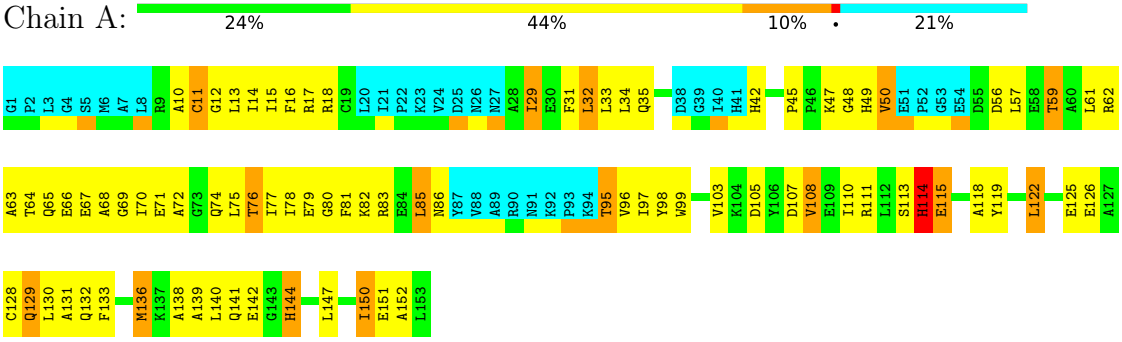
Chain A:



4.2.7 Score per residue for model 7

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

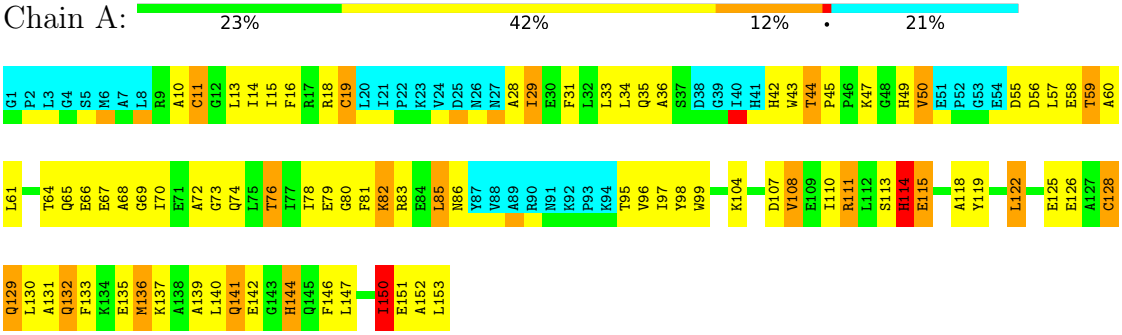
Chain A:



4.2.8 Score per residue for model 8

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

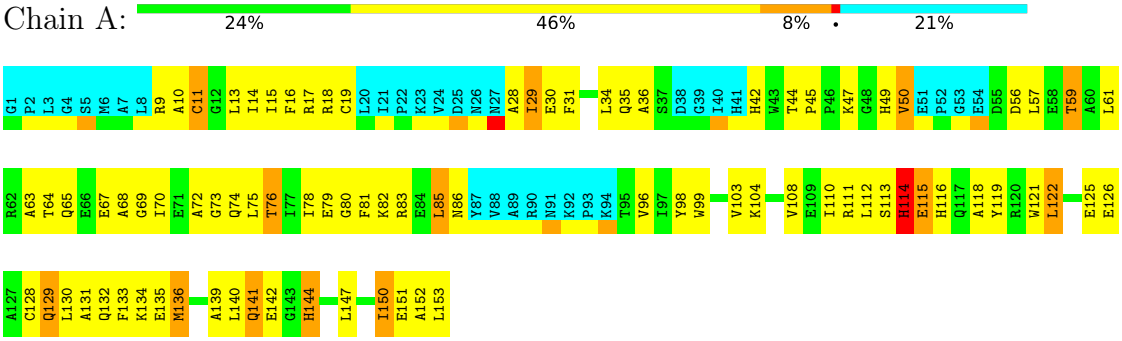
Chain A:



4.2.9 Score per residue for model 9 (medoid)

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

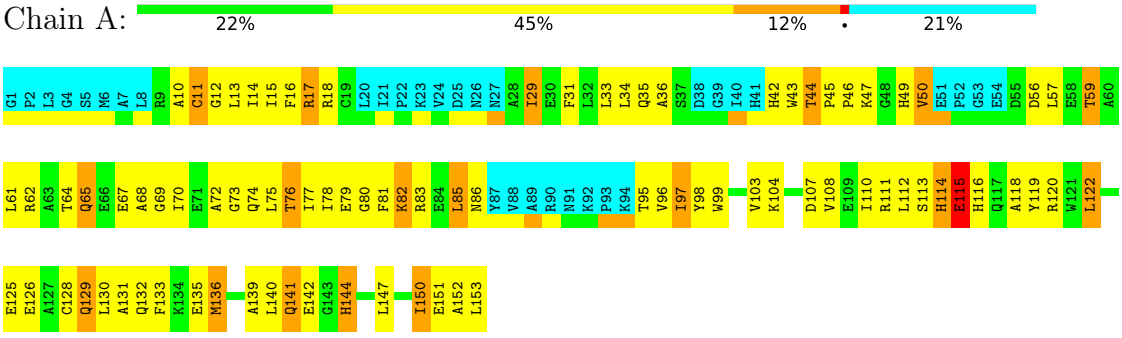
Chain A:



4.2.10 Score per residue for model 10

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

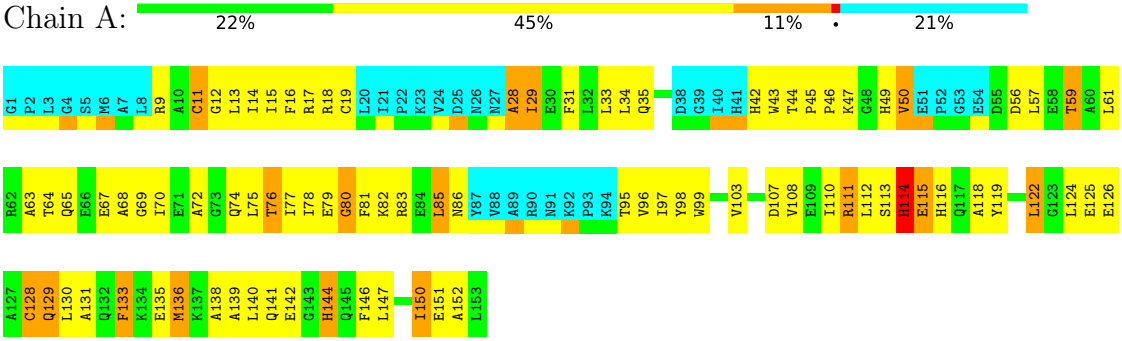
Chain A:



4.2.11 Score per residue for model 11

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

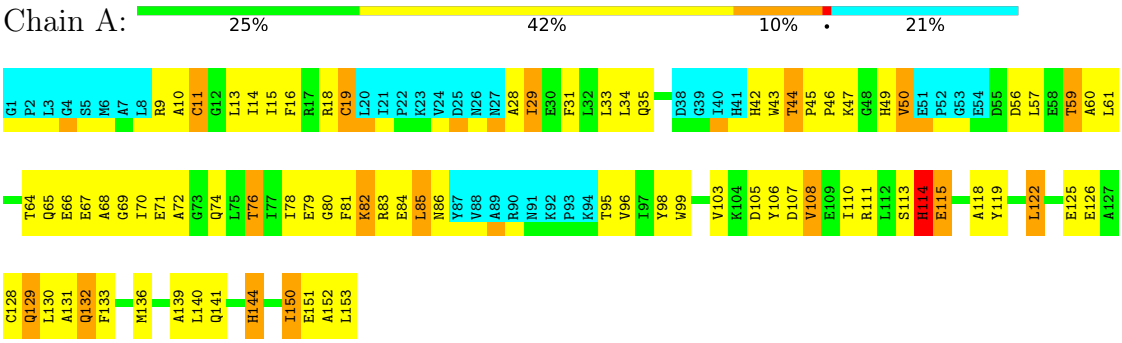
Chain A:



4.2.12 Score per residue for model 12

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

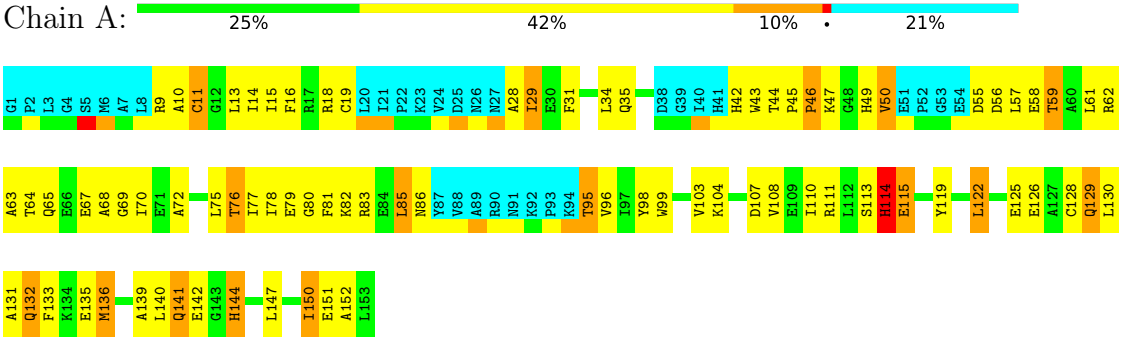
Chain A:



4.2.13 Score per residue for model 13

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

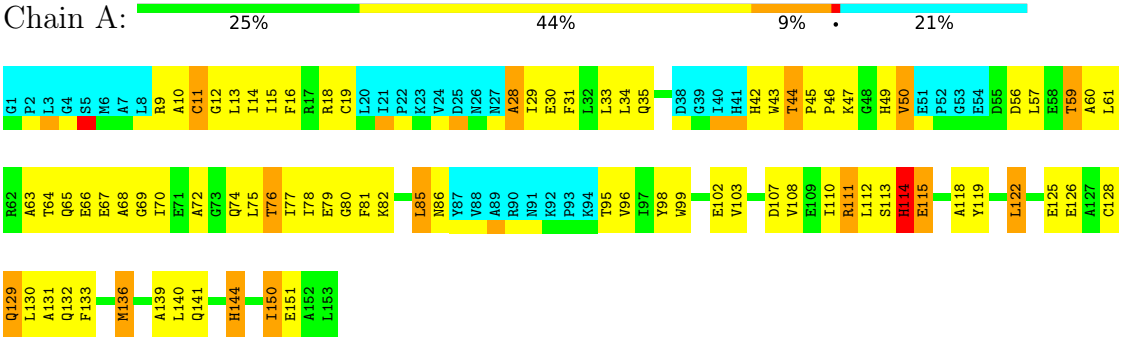
Chain A:



4.2.14 Score per residue for model 14

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

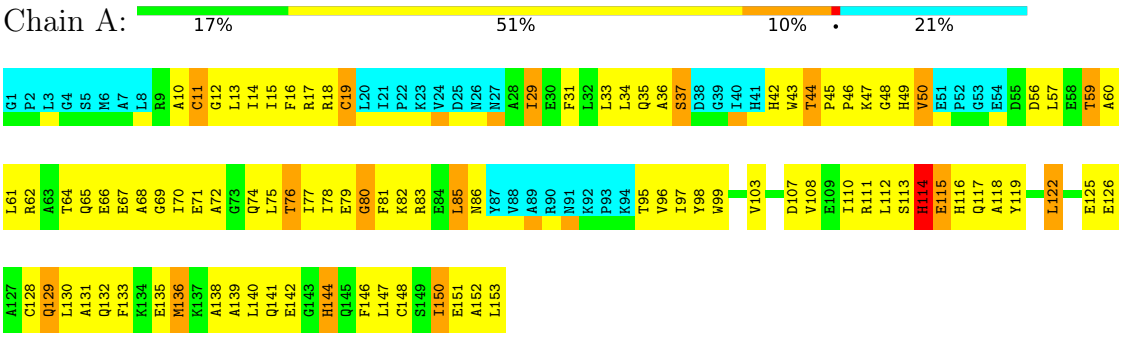
Chain A:



4.2.15 Score per residue for model 15

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

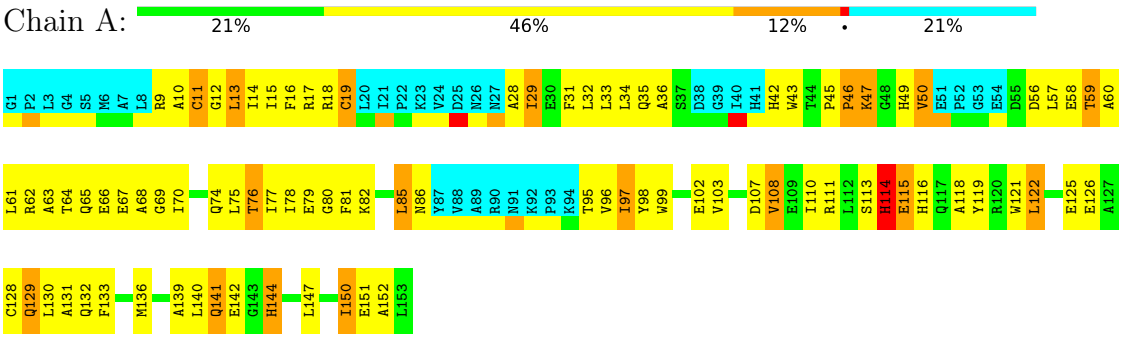
Chain A:



4.2.16 Score per residue for model 16

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

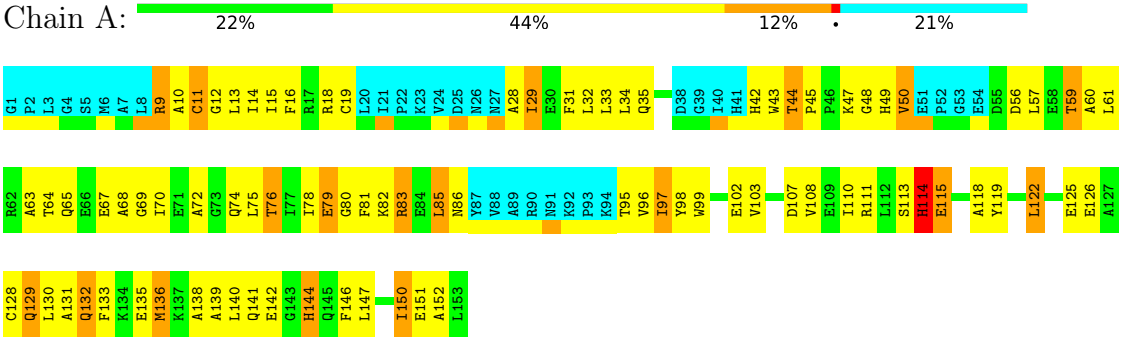
Chain A:



4.2.17 Score per residue for model 17

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

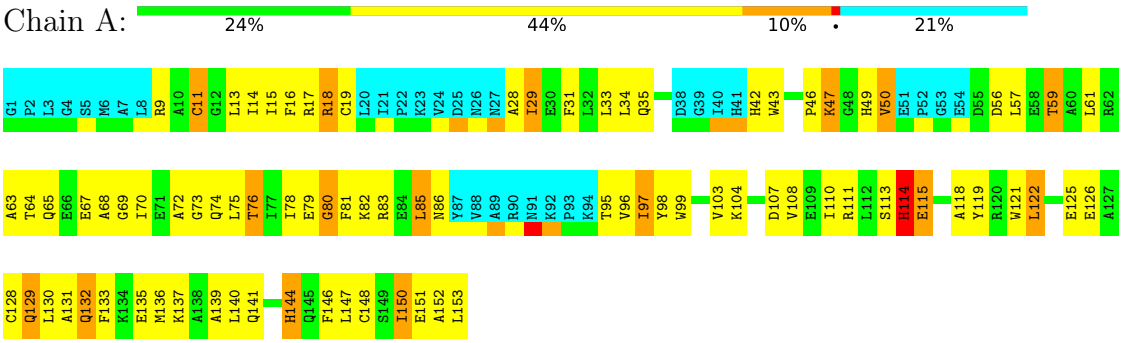
Chain A:



4.2.18 Score per residue for model 18

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

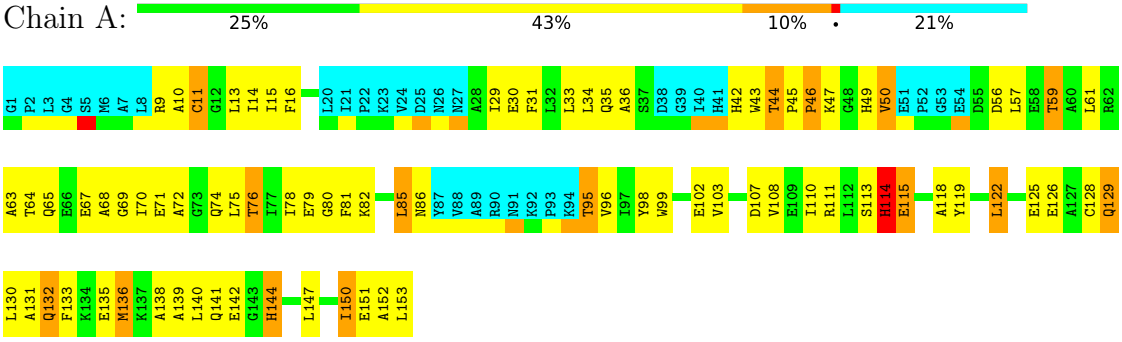
Chain A:



4.2.19 Score per residue for model 19

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

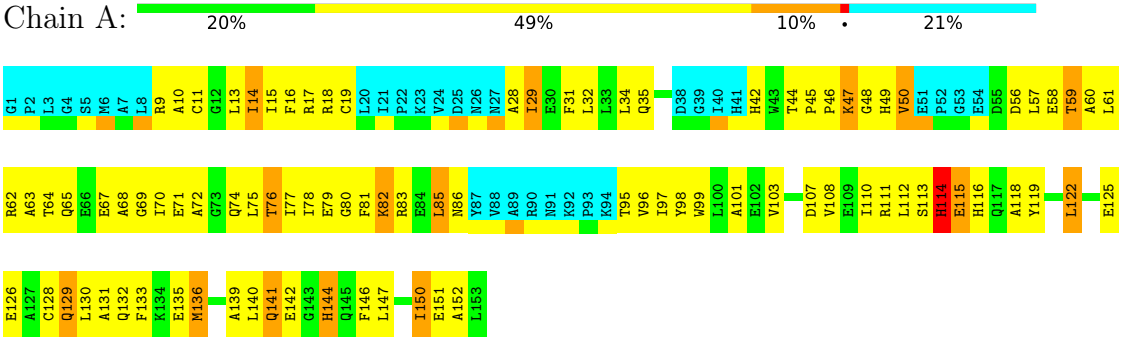
Chain A:



4.2.20 Score per residue for model 20

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

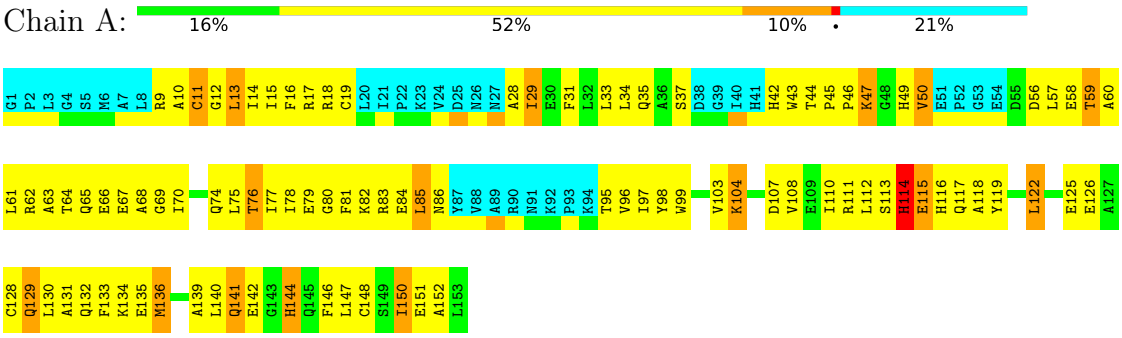
Chain A:



4.2.21 Score per residue for model 21

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

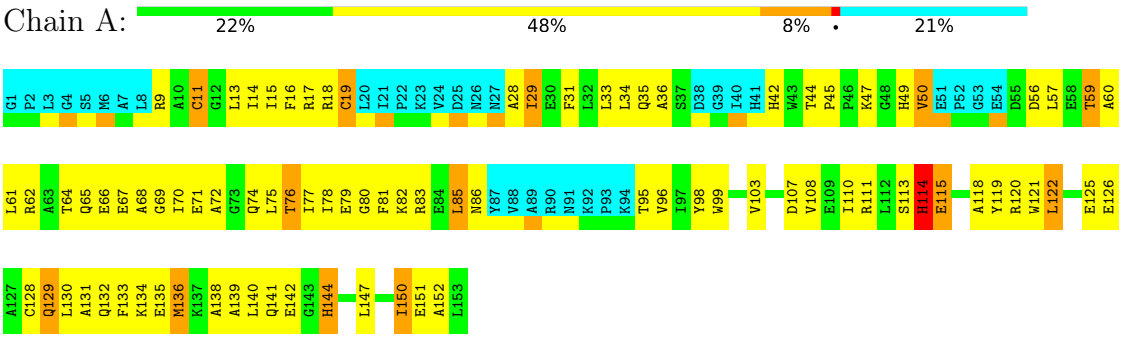
Chain A:



4.2.22 Score per residue for model 22

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

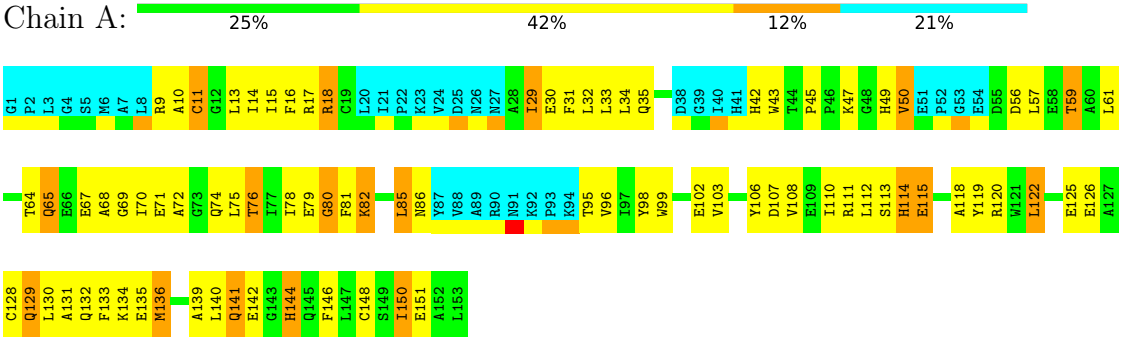
Chain A:



4.2.23 Score per residue for model 23

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

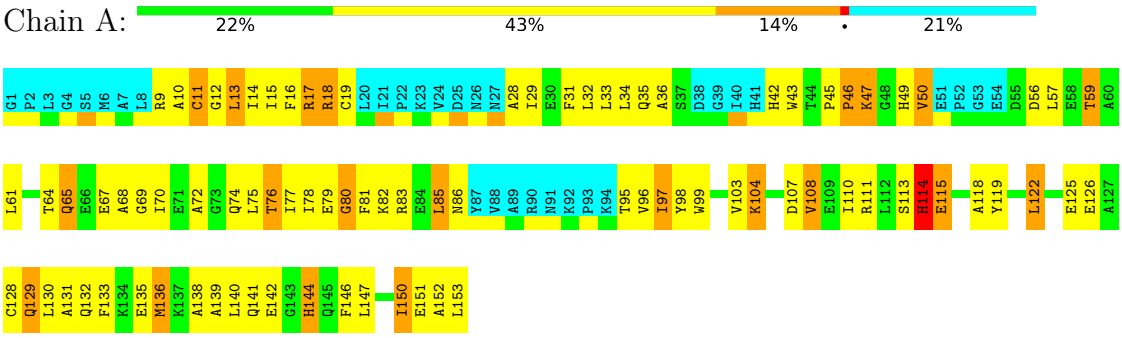
Chain A:



4.2.24 Score per residue for model 24

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

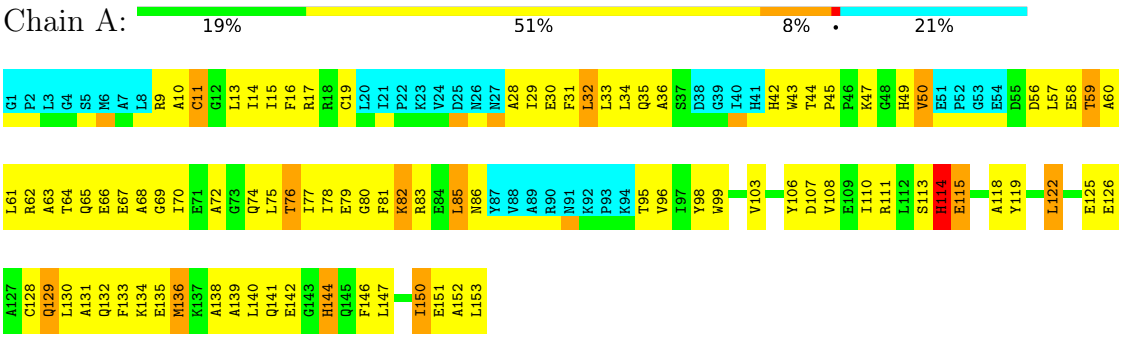
Chain A:



4.2.25 Score per residue for model 25

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

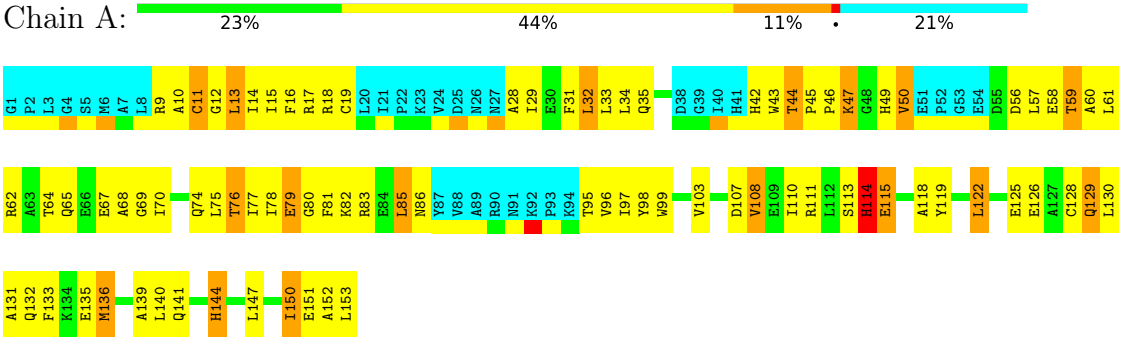
Chain A:



4.2.26 Score per residue for model 26

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

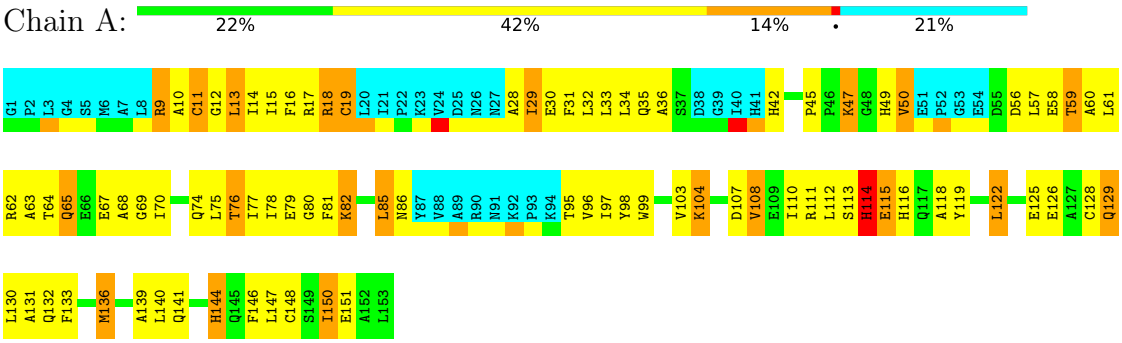
Chain A:



4.2.27 Score per residue for model 27

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

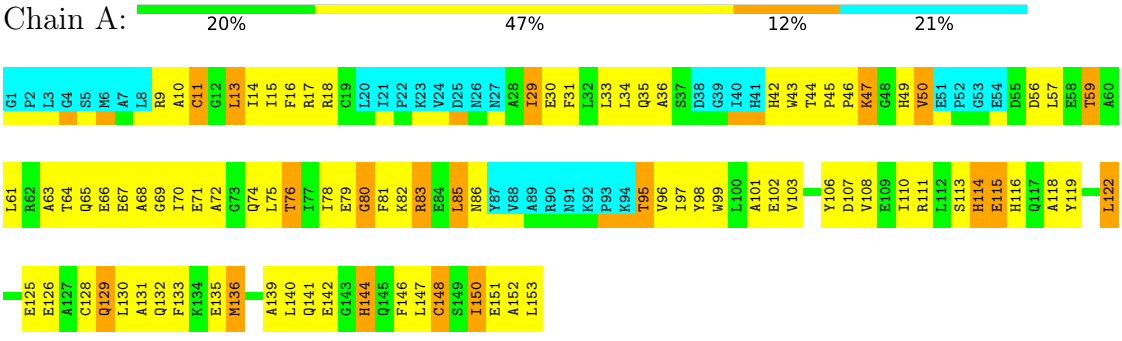
Chain A:



4.2.28 Score per residue for model 28

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

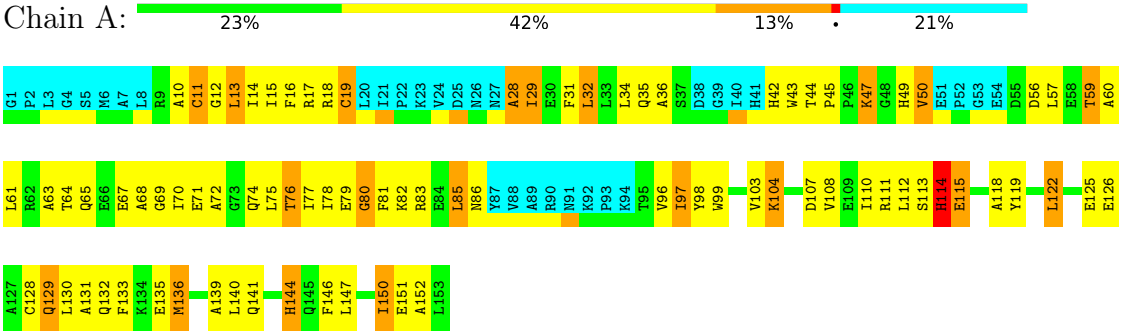
Chain A:



4.2.29 Score per residue for model 29

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

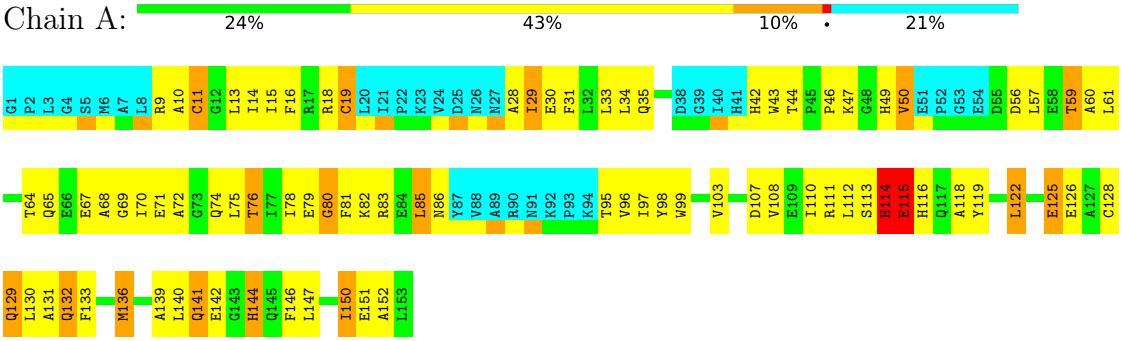
Chain A:



4.2.30 Score per residue for model 30

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

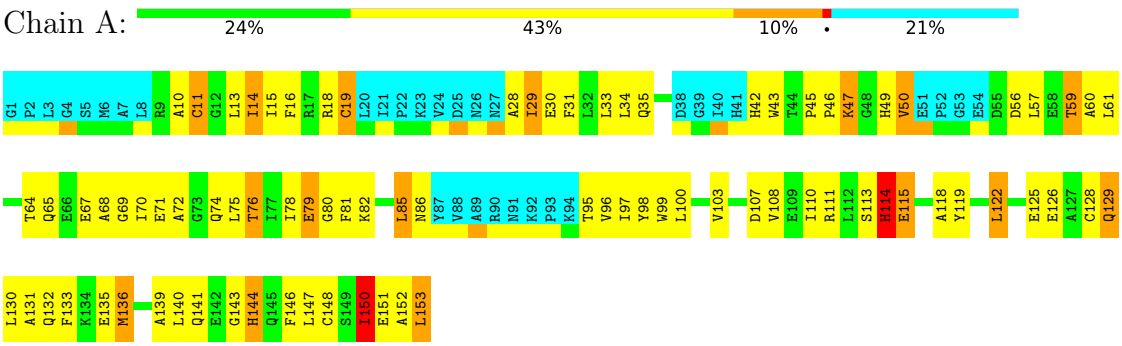
Chain A:



4.2.31 Score per residue for model 31

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

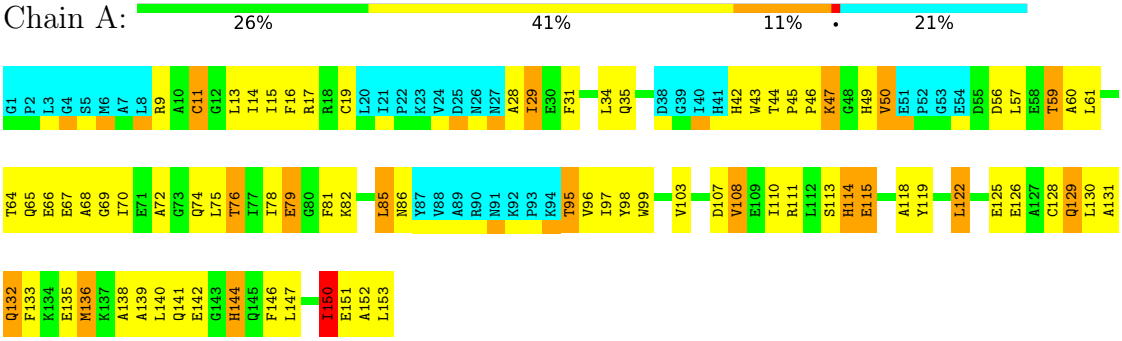
Chain A:



4.2.32 Score per residue for model 32

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

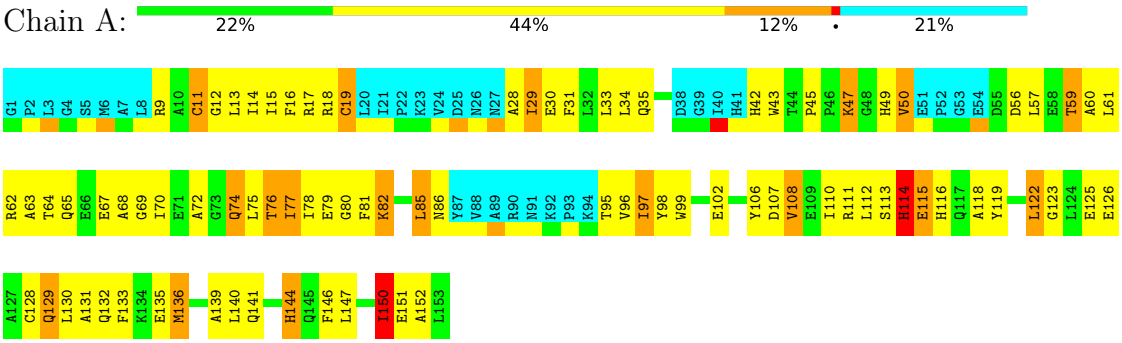
Chain A:



4.2.33 Score per residue for model 33

• Molecule 1: Bis(5'-nucleosyl)-tetraphosphatase

Chain A:



5 Refinement protocol and experimental data overview

The models were refined using the following method: *CANDID with talos for NOE assignments. xplor-NIH with RAMA pot. Further Refine against CACB shifts.*

Of the 100 calculated structures, 33 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	1.0.7
XPLOR-NIH	refinement	2.9.1

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	977	988	964	122±10
All	All	32241	32604	31812	4033

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 63.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:85:LEU:N	1:A:96:VAL:O	1.09	1.85	28	33
1:A:15:ILE:HD11	1:A:64:THR:HG23	0.94	1.37	18	26
1:A:110:ILE:HG21	1:A:119:TYR:CD2	0.94	1.97	24	17
1:A:147:LEU:O	1:A:150:ILE:HG22	0.93	1.63	27	7
1:A:150:ILE:HG22	1:A:151:GLU:H	0.91	1.25	23	25
1:A:150:ILE:HG23	1:A:151:GLU:N	0.90	1.81	32	7
1:A:82:LYS:NZ	1:A:97:ILE:HG21	0.89	1.82	20	1
1:A:79:GLU:O	1:A:81:PHE:N	0.86	2.08	30	33
1:A:85:LEU:HD22	1:A:98:TYR:CE2	0.85	2.06	31	33
1:A:114:HIS:O	1:A:114:HIS:CG	0.85	2.29	15	33
1:A:131:ALA:O	1:A:133:PHE:CD2	0.84	2.30	30	31
1:A:13:LEU:HD12	1:A:64:THR:HG21	0.84	1.49	19	32
1:A:98:TYR:HE2	1:A:136:MET:SD	0.83	1.96	18	1
1:A:70:ILE:HD11	1:A:110:ILE:CD1	0.82	2.05	26	15

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:150:ILE:HG23	1:A:151:GLU:H	0.82	1.35	32	7
1:A:33:LEU:O	1:A:34:LEU:HD23	0.81	1.75	16	24
1:A:82:LYS:HZ2	1:A:97:ILE:HG21	0.81	1.36	20	1
1:A:61:LEU:HD22	1:A:72:ALA:HB2	0.81	1.53	5	29
1:A:86:ASN:N	1:A:135:GLU:OE2	0.79	2.15	17	3
1:A:74:GLN:NE2	1:A:108:VAL:HG23	0.79	1.91	25	15
1:A:49:HIS:CD2	1:A:50:VAL:H	0.77	1.96	31	33
1:A:113:SER:O	1:A:115:GLU:N	0.77	2.18	2	33
1:A:14:ILE:HG22	1:A:14:ILE:O	0.76	1.79	20	2
1:A:68:ALA:HB1	1:A:110:ILE:HG23	0.76	1.57	2	9
1:A:131:ALA:O	1:A:133:PHE:N	0.76	2.19	12	9
1:A:152:ALA:O	1:A:153:LEU:O	0.76	2.04	25	12
1:A:31:PHE:CE2	1:A:144:HIS:CE1	0.75	2.75	27	31
1:A:77:ILE:HG22	1:A:79:GLU:HG3	0.74	1.58	21	5
1:A:29:ILE:HG21	1:A:144:HIS:NE2	0.74	1.97	19	5
1:A:31:PHE:N	1:A:122:LEU:O	0.73	2.21	19	32
1:A:85:LEU:C	1:A:86:ASN:HD22	0.73	1.86	27	33
1:A:15:ILE:HD11	1:A:64:THR:CG2	0.72	2.15	18	12
1:A:12:GLY:N	1:A:97:ILE:O	0.72	2.22	21	13
1:A:65:GLN:O	1:A:69:GLY:N	0.72	2.23	23	23
1:A:19:CYS:SG	1:A:106:TYR:CE1	0.72	2.80	33	2
1:A:13:LEU:HD11	1:A:61:LEU:HD23	0.72	1.61	8	23
1:A:67:GLU:OE1	1:A:116:HIS:ND1	0.72	2.23	20	1
1:A:14:ILE:N	1:A:99:TRP:O	0.72	2.21	17	28
1:A:85:LEU:O	1:A:86:ASN:ND2	0.72	2.21	5	31
1:A:86:ASN:N	1:A:135:GLU:OE1	0.71	2.23	21	10
1:A:150:ILE:HG22	1:A:151:GLU:N	0.71	2.00	23	23
1:A:68:ALA:O	1:A:111:ARG:N	0.71	2.23	20	28
1:A:131:ALA:O	1:A:133:PHE:CE2	0.71	2.44	21	30
1:A:74:GLN:OE1	1:A:108:VAL:HG23	0.70	1.87	11	11
1:A:13:LEU:HD12	1:A:64:THR:OG1	0.70	1.86	21	13
1:A:31:PHE:CD2	1:A:140:LEU:HD22	0.70	2.21	20	29
1:A:49:HIS:CD2	1:A:50:VAL:N	0.70	2.59	21	32
1:A:68:ALA:C	1:A:111:ARG:O	0.70	2.31	14	33
1:A:128:CYS:SG	1:A:137:LYS:NZ	0.70	2.65	8	1
1:A:150:ILE:CG2	1:A:151:GLU:N	0.69	2.54	31	23
1:A:36:ALA:HB3	1:A:42:HIS:CE1	0.69	2.22	28	14
1:A:77:ILE:HG22	1:A:79:GLU:CG	0.69	2.17	21	5
1:A:70:ILE:HG23	1:A:74:GLN:OE1	0.69	1.87	21	3
1:A:110:ILE:HG21	1:A:119:TYR:CG	0.69	2.23	32	20
1:A:47:LYS:N	1:A:67:GLU:OE1	0.69	2.26	28	6

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:83:ARG:N	1:A:83:ARG:CD	0.69	2.56	4	1
1:A:98:TYR:CE2	1:A:136:MET:SD	0.69	2.85	18	1
1:A:35:GLN:NE2	1:A:43:TRP:NE1	0.69	2.41	11	4
1:A:13:LEU:HD12	1:A:64:THR:CG2	0.68	2.18	33	31
1:A:49:HIS:CE1	1:A:50:VAL:O	0.68	2.45	24	33
1:A:78:ILE:HD12	1:A:78:ILE:N	0.68	2.02	33	19
1:A:61:LEU:HD21	1:A:77:ILE:HD11	0.68	1.65	21	8
1:A:19:CYS:N	1:A:28:ALA:O	0.68	2.27	32	25
1:A:122:LEU:HD22	1:A:126:GLU:CD	0.68	2.09	6	31
1:A:125:GLU:O	1:A:129:GLN:NE2	0.68	2.26	17	11
1:A:70:ILE:HD11	1:A:110:ILE:HD12	0.68	1.65	33	10
1:A:65:GLN:O	1:A:69:GLY:HA2	0.68	1.88	29	33
1:A:44:THR:OG1	1:A:47:LYS:NZ	0.68	2.26	15	9
1:A:82:LYS:HG3	1:A:99:TRP:NE1	0.68	2.04	23	31
1:A:67:GLU:OE1	1:A:116:HIS:CE1	0.67	2.47	2	5
1:A:14:ILE:O	1:A:14:ILE:CG2	0.67	2.41	20	2
1:A:85:LEU:HD13	1:A:98:TYR:CD2	0.67	2.23	14	33
1:A:11:CYS:SG	1:A:59:THR:CG2	0.67	2.82	27	32
1:A:47:LYS:N	1:A:67:GLU:OE2	0.67	2.28	18	10
1:A:15:ILE:HD13	1:A:70:ILE:HD12	0.67	1.66	23	28
1:A:83:ARG:HH12	1:A:85:LEU:HD12	0.67	1.49	4	1
1:A:49:HIS:CG	1:A:50:VAL:N	0.66	2.63	30	33
1:A:110:ILE:HG22	1:A:110:ILE:O	0.66	1.88	29	3
1:A:17:ARG:NH2	1:A:121:TRP:NE1	0.66	2.43	5	2
1:A:114:HIS:O	1:A:114:HIS:CD2	0.66	2.49	27	24
1:A:83:ARG:NH1	1:A:85:LEU:HD12	0.66	2.06	4	1
1:A:17:ARG:NH2	1:A:121:TRP:CE2	0.66	2.63	16	3
1:A:82:LYS:HG3	1:A:99:TRP:CE2	0.66	2.26	23	29
1:A:45:PRO:HD3	1:A:136:MET:SD	0.66	2.31	19	15
1:A:17:ARG:NH1	1:A:103:VAL:O	0.66	2.29	4	4
1:A:110:ILE:HG22	1:A:112:LEU:HD21	0.66	1.67	29	13
1:A:18:ARG:NH2	1:A:151:GLU:OE1	0.66	2.29	1	2
1:A:85:LEU:O	1:A:96:VAL:N	0.65	2.29	22	33
1:A:15:ILE:CD1	1:A:70:ILE:HD12	0.65	2.22	20	28
1:A:9:ARG:CG	1:A:9:ARG:O	0.65	2.44	16	10
1:A:16:PHE:CE1	1:A:102:GLU:OE1	0.65	2.50	16	1
1:A:136:MET:O	1:A:136:MET:SD	0.65	2.55	5	6
1:A:31:PHE:CZ	1:A:144:HIS:CE1	0.65	2.85	32	29
1:A:76:THR:O	1:A:78:ILE:HD12	0.65	1.92	1	4
1:A:49:HIS:NE2	1:A:50:VAL:O	0.65	2.30	21	1
1:A:18:ARG:HA	1:A:28:ALA:O	0.64	1.92	11	17

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:50:VAL:HG23	1:A:59:THR:OG1	0.64	1.92	18	32
1:A:110:ILE:HB	1:A:119:TYR:CE2	0.64	2.26	10	27
1:A:68:ALA:CB	1:A:110:ILE:HG23	0.64	2.23	2	3
1:A:11:CYS:SG	1:A:56:ASP:O	0.63	2.56	20	32
1:A:75:LEU:HD21	1:A:103:VAL:HG12	0.63	1.70	21	24
1:A:110:ILE:HG13	1:A:119:TYR:CD2	0.63	2.29	27	12
1:A:85:LEU:CD1	1:A:139:ALA:HB2	0.63	2.24	32	33
1:A:47:LYS:O	1:A:67:GLU:OE1	0.63	2.16	26	10
1:A:67:GLU:N	1:A:67:GLU:OE2	0.63	2.32	6	1
1:A:31:PHE:CG	1:A:140:LEU:CD2	0.62	2.82	20	27
1:A:110:ILE:CD1	1:A:110:ILE:N	0.62	2.62	29	3
1:A:67:GLU:N	1:A:67:GLU:OE1	0.62	2.32	27	2
1:A:35:GLN:OE1	1:A:43:TRP:NE1	0.62	2.33	8	3
1:A:82:LYS:HZ2	1:A:97:ILE:CG2	0.62	2.06	20	1
1:A:63:ALA:O	1:A:67:GLU:N	0.62	2.29	9	13
1:A:45:PRO:CG	1:A:136:MET:SD	0.62	2.87	8	1
1:A:11:CYS:SG	1:A:59:THR:HG21	0.62	2.34	21	28
1:A:83:ARG:N	1:A:83:ARG:HD2	0.62	2.09	4	1
1:A:132:GLN:O	1:A:132:GLN:NE2	0.62	2.32	28	2
1:A:65:GLN:O	1:A:69:GLY:CA	0.62	2.48	20	28
1:A:125:GLU:CG	1:A:126:GLU:N	0.62	2.62	3	29
1:A:122:LEU:HD22	1:A:126:GLU:HG2	0.62	1.71	29	27
1:A:85:LEU:C	1:A:86:ASN:ND2	0.62	2.52	27	33
1:A:60:ALA:O	1:A:64:THR:OG1	0.62	2.17	31	14
1:A:71:GLU:H	1:A:74:GLN:HE21	0.61	1.38	23	12
1:A:46:PRO:HG3	1:A:68:ALA:HB2	0.61	1.71	13	4
1:A:65:GLN:OE1	1:A:71:GLU:N	0.61	2.34	29	1
1:A:74:GLN:O	1:A:104:LYS:NZ	0.61	2.31	27	3
1:A:75:LEU:CD2	1:A:103:VAL:HG12	0.61	2.26	20	30
1:A:65:GLN:CG	1:A:66:GLU:N	0.61	2.63	22	9
1:A:128:CYS:SG	1:A:129:GLN:NE2	0.61	2.74	8	1
1:A:83:ARG:HH11	1:A:83:ARG:HG2	0.61	1.56	4	1
1:A:18:ARG:NE	1:A:102:GLU:OE1	0.60	2.34	28	3
1:A:31:PHE:CG	1:A:140:LEU:HD22	0.60	2.31	18	32
1:A:17:ARG:HD3	1:A:103:VAL:HG23	0.60	1.73	6	10
1:A:9:ARG:NH2	1:A:56:ASP:OD1	0.60	2.34	19	4
1:A:9:ARG:NE	1:A:56:ASP:OD1	0.60	2.34	32	6
1:A:110:ILE:CG1	1:A:119:TYR:CE2	0.60	2.84	27	13
1:A:150:ILE:CG2	1:A:151:GLU:H	0.60	2.02	23	12
1:A:17:ARG:NE	1:A:18:ARG:O	0.60	2.25	10	2
1:A:10:ALA:O	1:A:96:VAL:HA	0.60	1.97	27	18

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:9:ARG:NH1	1:A:56:ASP:OD1	0.60	2.34	9	2
1:A:18:ARG:NH1	1:A:102:GLU:OE1	0.60	2.34	23	2
1:A:10:ALA:HB3	1:A:96:VAL:HG22	0.60	1.72	4	14
1:A:17:ARG:CG	1:A:17:ARG:HH11	0.60	2.07	10	2
1:A:45:PRO:CG	1:A:98:TYR:OH	0.59	2.50	17	9
1:A:133:PHE:HB2	1:A:136:MET:HB2	0.59	1.73	33	6
1:A:110:ILE:CG1	1:A:119:TYR:CD2	0.59	2.85	27	7
1:A:73:GLY:O	1:A:104:LYS:NZ	0.59	2.35	8	6
1:A:43:TRP:NE1	1:A:130:LEU:HD22	0.59	2.11	29	2
1:A:35:GLN:HB3	1:A:118:ALA:HB3	0.59	1.75	3	32
1:A:131:ALA:C	1:A:133:PHE:H	0.59	2.01	3	12
1:A:82:LYS:CD	1:A:82:LYS:C	0.59	2.71	2	23
1:A:125:GLU:O	1:A:129:GLN:N	0.59	2.36	29	2
1:A:14:ILE:HD11	1:A:98:TYR:CD2	0.58	2.33	16	18
1:A:126:GLU:O	1:A:129:GLN:HG2	0.58	1.97	24	31
1:A:83:ARG:O	1:A:97:ILE:HG23	0.58	1.97	4	4
1:A:114:HIS:CD2	1:A:114:HIS:C	0.58	2.76	24	14
1:A:17:ARG:NH1	1:A:18:ARG:O	0.58	2.36	6	2
1:A:85:LEU:HD22	1:A:98:TYR:CZ	0.58	2.33	14	17
1:A:9:ARG:CZ	1:A:56:ASP:OD1	0.58	2.52	32	3
1:A:132:GLN:O	1:A:132:GLN:CD	0.58	2.42	32	2
1:A:45:PRO:CD	1:A:136:MET:SD	0.58	2.91	25	11
1:A:67:GLU:OE2	1:A:116:HIS:CE1	0.58	2.57	28	3
1:A:10:ALA:N	1:A:95:THR:O	0.58	2.29	7	9
1:A:29:ILE:CG2	1:A:144:HIS:NE2	0.58	2.67	24	30
1:A:122:LEU:HD22	1:A:126:GLU:CG	0.58	2.29	32	33
1:A:86:ASN:ND2	1:A:95:THR:HA	0.58	2.14	21	23
1:A:44:THR:HG21	1:A:47:LYS:NZ	0.58	2.13	4	1
1:A:35:GLN:OE1	1:A:43:TRP:CE2	0.58	2.57	25	2
1:A:82:LYS:CG	1:A:99:TRP:NE1	0.58	2.67	20	22
1:A:82:LYS:HD3	1:A:83:ARG:N	0.58	2.14	4	1
1:A:85:LEU:O	1:A:96:VAL:HB	0.58	1.99	21	28
1:A:131:ALA:O	1:A:132:GLN:CG	0.58	2.52	13	6
1:A:30:GLU:OE1	1:A:123:GLY:N	0.58	2.37	33	1
1:A:112:LEU:CD1	1:A:118:ALA:N	0.58	2.66	20	3
1:A:138:ALA:O	1:A:142:GLU:N	0.57	2.32	11	11
1:A:110:ILE:CG2	1:A:112:LEU:HD21	0.57	2.29	29	3
1:A:45:PRO:CG	1:A:98:TYR:CZ	0.57	2.88	31	9
1:A:83:ARG:NH1	1:A:83:ARG:CG	0.57	2.66	4	2
1:A:16:PHE:C	1:A:16:PHE:CD1	0.57	2.77	32	26
1:A:136:MET:SD	1:A:136:MET:C	0.57	2.82	14	7

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:17:ARG:CG	1:A:17:ARG:NH1	0.57	2.65	10	2
1:A:57:LEU:HD13	1:A:99:TRP:CD2	0.57	2.35	21	32
1:A:103:VAL:HG23	1:A:103:VAL:O	0.57	2.00	21	22
1:A:147:LEU:O	1:A:150:ILE:N	0.57	2.34	31	7
1:A:135:GLU:O	1:A:139:ALA:N	0.57	2.30	2	14
1:A:114:HIS:O	1:A:115:GLU:CG	0.57	2.53	19	8
1:A:85:LEU:HD11	1:A:139:ALA:HB2	0.57	1.77	32	18
1:A:82:LYS:C	1:A:82:LYS:HD3	0.57	2.20	26	20
1:A:110:ILE:HG21	1:A:119:TYR:CB	0.56	2.29	29	3
1:A:147:LEU:O	1:A:152:ALA:HB3	0.56	1.99	7	22
1:A:42:HIS:CD2	1:A:42:HIS:O	0.56	2.59	23	16
1:A:50:VAL:O	1:A:50:VAL:CG1	0.56	2.52	23	25
1:A:78:ILE:N	1:A:78:ILE:CD1	0.56	2.67	33	19
1:A:96:VAL:CG1	1:A:98:TYR:CE1	0.56	2.87	18	17
1:A:47:LYS:O	1:A:67:GLU:OE2	0.56	2.23	5	5
1:A:11:CYS:CB	1:A:60:ALA:HB2	0.56	2.30	20	1
1:A:78:ILE:HD12	1:A:78:ILE:H	0.56	1.59	32	10
1:A:122:LEU:HD13	1:A:130:LEU:HD12	0.56	1.78	14	33
1:A:43:TRP:CD1	1:A:130:LEU:HD22	0.56	2.36	29	6
1:A:63:ALA:O	1:A:67:GLU:OE1	0.55	2.23	27	3
1:A:104:LYS:H	1:A:104:LYS:NZ	0.55	1.98	21	1
1:A:68:ALA:O	1:A:111:ARG:O	0.55	2.24	30	19
1:A:32:LEU:CD2	1:A:70:ILE:HD11	0.55	2.31	16	8
1:A:67:GLU:OE2	1:A:115:GLU:OE2	0.55	2.25	19	6
1:A:10:ALA:CB	1:A:48:GLY:O	0.55	2.54	20	2
1:A:110:ILE:CG2	1:A:119:TYR:CD2	0.55	2.87	10	7
1:A:128:CYS:SG	1:A:129:GLN:N	0.55	2.80	8	2
1:A:58:GLU:O	1:A:62:ARG:N	0.54	2.38	21	8
1:A:86:ASN:O	1:A:135:GLU:CD	0.54	2.45	26	7
1:A:85:LEU:O	1:A:96:VAL:O	0.54	2.25	6	7
1:A:131:ALA:C	1:A:133:PHE:N	0.54	2.61	3	8
1:A:18:ARG:CA	1:A:28:ALA:O	0.54	2.54	14	1
1:A:86:ASN:O	1:A:135:GLU:OE2	0.54	2.25	17	6
1:A:122:LEU:CD1	1:A:130:LEU:HD12	0.54	2.32	14	31
1:A:110:ILE:CB	1:A:119:TYR:CE2	0.54	2.90	10	10
1:A:18:ARG:NE	1:A:102:GLU:OE2	0.54	2.41	14	2
1:A:34:LEU:CD2	1:A:119:TYR:CB	0.54	2.86	32	26
1:A:67:GLU:OE2	1:A:115:GLU:OE1	0.54	2.26	22	6
1:A:83:ARG:HH11	1:A:83:ARG:CG	0.54	2.13	4	1
1:A:82:LYS:HD2	1:A:82:LYS:C	0.54	2.23	1	1
1:A:82:LYS:C	1:A:82:LYS:CD	0.54	2.76	1	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:82:LYS:C	1:A:82:LYS:HD2	0.54	2.23	5	2
1:A:37:SER:CB	1:A:117:GLN:OE1	0.53	2.56	15	2
1:A:63:ALA:CA	1:A:67:GLU:OE1	0.53	2.55	27	3
1:A:125:GLU:O	1:A:129:GLN:CD	0.53	2.47	19	31
1:A:110:ILE:N	1:A:110:ILE:HD12	0.53	2.17	2	3
1:A:76:THR:HG22	1:A:76:THR:O	0.53	2.04	9	6
1:A:11:CYS:CB	1:A:56:ASP:O	0.53	2.57	26	13
1:A:136:MET:SD	1:A:140:LEU:CD1	0.53	2.96	14	2
1:A:63:ALA:O	1:A:67:GLU:OE2	0.53	2.27	29	1
1:A:82:LYS:CG	1:A:99:TRP:CE2	0.53	2.92	20	21
1:A:107:ASP:C	1:A:107:ASP:OD2	0.52	2.47	28	14
1:A:81:PHE:C	1:A:81:PHE:CD1	0.52	2.82	6	2
1:A:43:TRP:CH2	1:A:120:ARG:HD2	0.52	2.39	23	2
1:A:13:LEU:HD12	1:A:64:THR:CB	0.52	2.34	18	6
1:A:82:LYS:HD3	1:A:82:LYS:C	0.52	2.25	11	4
1:A:19:CYS:SG	1:A:28:ALA:O	0.52	2.62	13	5
1:A:78:ILE:O	1:A:79:GLU:OE2	0.52	2.28	26	1
1:A:114:HIS:O	1:A:115:GLU:HG3	0.52	2.05	23	8
1:A:129:GLN:HE21	1:A:129:GLN:N	0.52	2.03	21	4
1:A:67:GLU:OE1	1:A:115:GLU:CD	0.52	2.48	9	3
1:A:17:ARG:NH1	1:A:121:TRP:CG	0.52	2.77	18	1
1:A:82:LYS:O	1:A:83:ARG:HD3	0.52	2.05	25	18
1:A:85:LEU:CA	1:A:96:VAL:O	0.52	2.57	28	7
1:A:18:ARG:CD	1:A:102:GLU:OE1	0.52	2.58	1	2
1:A:122:LEU:HD22	1:A:126:GLU:OE1	0.52	2.04	4	14
1:A:77:ILE:O	1:A:79:GLU:OE1	0.52	2.28	26	1
1:A:66:GLU:O	1:A:113:SER:OG	0.52	2.26	32	2
1:A:76:THR:CG2	1:A:76:THR:O	0.52	2.57	5	7
1:A:107:ASP:OD1	1:A:107:ASP:C	0.52	2.48	20	4
1:A:9:ARG:NE	1:A:56:ASP:OD2	0.52	2.35	23	1
1:A:63:ALA:O	1:A:67:GLU:CG	0.51	2.57	2	1
1:A:113:SER:O	1:A:114:HIS:C	0.51	2.48	33	25
1:A:9:ARG:O	1:A:9:ARG:HG3	0.51	2.05	16	1
1:A:103:VAL:O	1:A:103:VAL:HG23	0.51	2.05	20	3
1:A:67:GLU:OE2	1:A:115:GLU:CD	0.51	2.48	30	3
1:A:122:LEU:HD22	1:A:126:GLU:OE2	0.51	2.05	5	8
1:A:43:TRP:CG	1:A:130:LEU:HB3	0.51	2.41	29	8
1:A:131:ALA:O	1:A:133:PHE:CG	0.51	2.64	19	5
1:A:63:ALA:O	1:A:67:GLU:HB2	0.51	2.06	29	2
1:A:17:ARG:NH1	1:A:106:TYR:CE2	0.51	2.79	28	1
1:A:74:GLN:HE21	1:A:108:VAL:HG23	0.51	1.64	2	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:83:ARG:NH2	1:A:85:LEU:HD12	0.51	2.21	4	1
1:A:31:PHE:CD1	1:A:140:LEU:CD2	0.51	2.94	19	5
1:A:66:GLU:OE1	1:A:113:SER:CB	0.51	2.59	14	1
1:A:134:LYS:CG	1:A:135:GLU:N	0.51	2.73	22	4
1:A:57:LEU:HA	1:A:99:TRP:CZ3	0.51	2.41	33	24
1:A:125:GLU:O	1:A:129:GLN:OE1	0.51	2.28	32	16
1:A:67:GLU:OE1	1:A:115:GLU:OE1	0.51	2.28	29	5
1:A:30:GLU:OE2	1:A:122:LEU:C	0.50	2.49	14	2
1:A:76:THR:O	1:A:76:THR:CG2	0.50	2.58	17	16
1:A:134:LYS:HG3	1:A:135:GLU:N	0.50	2.21	22	2
1:A:78:ILE:O	1:A:79:GLU:HB2	0.50	2.06	21	2
1:A:67:GLU:CD	1:A:115:GLU:OE1	0.50	2.50	31	5
1:A:110:ILE:CB	1:A:119:TYR:CD2	0.50	2.94	27	7
1:A:146:PHE:CD1	1:A:146:PHE:C	0.50	2.85	27	6
1:A:42:HIS:CD2	1:A:42:HIS:C	0.50	2.85	3	20
1:A:86:ASN:O	1:A:135:GLU:OE1	0.50	2.29	18	8
1:A:63:ALA:HA	1:A:67:GLU:OE2	0.50	2.07	6	1
1:A:69:GLY:CA	1:A:111:ARG:O	0.50	2.60	24	9
1:A:42:HIS:CD2	1:A:44:THR:CG2	0.50	2.95	14	1
1:A:18:ARG:CD	1:A:102:GLU:OE2	0.49	2.60	17	1
1:A:63:ALA:HB1	1:A:67:GLU:HG3	0.49	1.84	16	1
1:A:17:ARG:NH1	1:A:121:TRP:CD2	0.49	2.77	22	1
1:A:125:GLU:HG3	1:A:126:GLU:N	0.49	2.22	18	28
1:A:83:ARG:NH2	1:A:139:ALA:HB2	0.49	2.21	4	1
1:A:76:THR:O	1:A:76:THR:HG22	0.49	2.07	26	6
1:A:82:LYS:CD	1:A:82:LYS:O	0.49	2.60	30	20
1:A:31:PHE:CZ	1:A:144:HIS:ND1	0.49	2.80	20	13
1:A:80:GLY:HA3	1:A:146:PHE:CE2	0.49	2.42	20	14
1:A:65:GLN:NE2	1:A:69:GLY:O	0.49	2.46	29	1
1:A:29:ILE:O	1:A:30:GLU:OE2	0.49	2.31	33	1
1:A:13:LEU:O	1:A:15:ILE:N	0.49	2.45	20	7
1:A:81:PHE:CE2	1:A:142:GLU:OE2	0.49	2.66	21	2
1:A:81:PHE:CZ	1:A:142:GLU:OE2	0.49	2.66	21	5
1:A:110:ILE:HB	1:A:119:TYR:CD2	0.49	2.43	29	7
1:A:11:CYS:HB2	1:A:60:ALA:HB2	0.49	1.84	6	5
1:A:151:GLU:HG2	1:A:151:GLU:O	0.49	2.08	20	8
1:A:43:TRP:C	1:A:44:THR:HG22	0.49	2.28	26	2
1:A:78:ILE:H	1:A:78:ILE:CD1	0.49	2.20	32	2
1:A:45:PRO:CG	1:A:136:MET:HE3	0.49	2.38	13	4
1:A:30:GLU:OE1	1:A:123:GLY:CA	0.49	2.61	33	1
1:A:146:PHE:CD1	1:A:150:ILE:HD11	0.48	2.43	29	9

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:70:ILE:HG21	1:A:75:LEU:HD21	0.48	1.85	7	2
1:A:67:GLU:CG	1:A:116:HIS:CE1	0.48	2.96	28	1
1:A:83:ARG:NH2	1:A:139:ALA:CB	0.48	2.77	4	1
1:A:49:HIS:CG	1:A:50:VAL:H	0.48	2.26	30	1
1:A:71:GLU:N	1:A:74:GLN:HE21	0.48	2.06	23	3
1:A:153:LEU:HD23	1:A:153:LEU:H	0.48	1.69	31	1
1:A:63:ALA:O	1:A:67:GLU:CB	0.48	2.61	2	2
1:A:147:LEU:O	1:A:150:ILE:CG2	0.48	2.52	27	1
1:A:11:CYS:HA	1:A:97:ILE:H	0.48	1.69	21	8
1:A:9:ARG:O	1:A:9:ARG:CG	0.48	2.62	28	6
1:A:45:PRO:HG2	1:A:98:TYR:CZ	0.48	2.44	31	5
1:A:17:ARG:CZ	1:A:106:TYR:CZ	0.48	2.97	25	1
1:A:70:ILE:HD11	1:A:110:ILE:HD13	0.48	1.79	26	1
1:A:19:CYS:SG	1:A:106:TYR:CZ	0.48	3.06	33	1
1:A:68:ALA:O	1:A:110:ILE:C	0.48	2.52	29	2
1:A:107:ASP:O	1:A:108:VAL:C	0.47	2.52	27	32
1:A:47:LYS:O	1:A:47:LYS:CG	0.47	2.62	25	2
1:A:16:PHE:HA	1:A:30:GLU:O	0.47	2.09	25	1
1:A:152:ALA:C	1:A:153:LEU:O	0.47	2.53	2	8
1:A:11:CYS:HB3	1:A:60:ALA:HB2	0.47	1.85	20	1
1:A:47:LYS:HD2	1:A:47:LYS:C	0.47	2.30	31	1
1:A:60:ALA:O	1:A:64:THR:N	0.47	2.37	2	3
1:A:104:LYS:HZ2	1:A:104:LYS:CB	0.47	2.22	21	2
1:A:148:CYS:SG	1:A:153:LEU:HD12	0.47	2.50	28	1
1:A:122:LEU:CD2	1:A:126:GLU:CD	0.47	2.81	6	24
1:A:83:ARG:HH22	1:A:85:LEU:HD12	0.47	1.69	4	1
1:A:16:PHE:CD1	1:A:102:GLU:OE1	0.47	2.68	16	1
1:A:65:GLN:NE2	1:A:69:GLY:C	0.47	2.68	29	1
1:A:152:ALA:O	1:A:153:LEU:C	0.47	2.53	2	6
1:A:131:ALA:O	1:A:132:GLN:HG2	0.47	2.10	30	5
1:A:125:GLU:HG2	1:A:126:GLU:N	0.47	2.24	30	4
1:A:55:ASP:H	1:A:58:GLU:HB2	0.47	1.70	8	2
1:A:44:THR:OG1	1:A:45:PRO:HD2	0.47	2.09	17	1
1:A:70:ILE:HD11	1:A:110:ILE:HD11	0.47	1.84	26	1
1:A:148:CYS:O	1:A:153:LEU:CD2	0.47	2.63	31	1
1:A:16:PHE:CD2	1:A:101:ALA:O	0.47	2.68	6	5
1:A:77:ILE:O	1:A:78:ILE:C	0.47	2.52	20	4
1:A:45:PRO:HG3	1:A:98:TYR:CZ	0.47	2.45	14	2
1:A:112:LEU:CB	1:A:116:HIS:O	0.47	2.62	33	6
1:A:17:ARG:CZ	1:A:106:TYR:CE2	0.47	2.98	33	1
1:A:63:ALA:HB1	1:A:67:GLU:CG	0.46	2.41	16	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:122:LEU:HD13	1:A:130:LEU:CD1	0.46	2.41	29	9
1:A:150:ILE:C	1:A:152:ALA:H	0.46	2.12	33	2
1:A:72:ALA:O	1:A:75:LEU:O	0.46	2.33	33	1
1:A:78:ILE:O	1:A:79:GLU:CB	0.46	2.63	31	7
1:A:114:HIS:O	1:A:115:GLU:CB	0.46	2.63	29	11
1:A:47:LYS:C	1:A:67:GLU:OE1	0.46	2.54	17	2
1:A:65:GLN:HA	1:A:70:ILE:N	0.46	2.26	31	4
1:A:19:CYS:SG	1:A:28:ALA:CB	0.46	3.04	16	1
1:A:69:GLY:N	1:A:111:ARG:O	0.46	2.49	32	4
1:A:44:THR:CG2	1:A:47:LYS:NZ	0.46	2.79	4	1
1:A:83:ARG:HH22	1:A:139:ALA:HB2	0.46	1.71	4	1
1:A:78:ILE:CD1	1:A:78:ILE:H	0.46	2.23	6	3
1:A:35:GLN:NE2	1:A:43:TRP:HE1	0.46	2.09	12	2
1:A:14:ILE:HB	1:A:99:TRP:O	0.46	2.11	24	5
1:A:133:PHE:HB2	1:A:136:MET:CB	0.46	2.41	33	2
1:A:17:ARG:NH1	1:A:121:TRP:CD1	0.46	2.83	18	1
1:A:86:ASN:ND2	1:A:96:VAL:H	0.46	2.09	26	4
1:A:46:PRO:HB2	1:A:64:THR:HA	0.46	1.88	1	5
1:A:65:GLN:HG3	1:A:66:GLU:N	0.46	2.26	16	3
1:A:78:ILE:CG2	1:A:146:PHE:CE1	0.46	2.99	27	1
1:A:10:ALA:HB1	1:A:48:GLY:O	0.45	2.10	20	1
1:A:75:LEU:HD21	1:A:103:VAL:CG1	0.45	2.42	27	1
1:A:16:PHE:CD1	1:A:16:PHE:C	0.45	2.89	7	7
1:A:34:LEU:CD2	1:A:119:TYR:HB3	0.45	2.41	29	4
1:A:110:ILE:HG22	1:A:112:LEU:CD2	0.45	2.38	29	5
1:A:110:ILE:CG2	1:A:119:TYR:CG	0.45	2.99	20	3
1:A:30:GLU:CA	1:A:122:LEU:O	0.45	2.65	28	6
1:A:34:LEU:CD2	1:A:119:TYR:HB2	0.45	2.41	33	5
1:A:141:GLN:HG2	1:A:142:GLU:N	0.45	2.26	16	11
1:A:82:LYS:CD	1:A:83:ARG:N	0.45	2.79	4	1
1:A:67:GLU:OE2	1:A:116:HIS:ND1	0.45	2.50	9	1
1:A:82:LYS:NZ	1:A:97:ILE:CG2	0.45	2.70	20	1
1:A:131:ALA:O	1:A:132:GLN:CB	0.45	2.63	4	4
1:A:84:GLU:HB3	1:A:95:THR:HG23	0.45	1.87	21	3
1:A:13:LEU:CD1	1:A:64:THR:OG1	0.45	2.64	29	5
1:A:65:GLN:HG2	1:A:66:GLU:N	0.45	2.27	7	1
1:A:18:ARG:CG	1:A:18:ARG:HH11	0.45	2.24	23	1
1:A:42:HIS:ND1	1:A:42:HIS:N	0.45	2.65	28	2
1:A:43:TRP:CH2	1:A:120:ARG:CD	0.45	3.00	10	2
1:A:35:GLN:HB2	1:A:43:TRP:CE2	0.45	2.46	21	3
1:A:82:LYS:NZ	1:A:99:TRP:CZ2	0.45	2.79	20	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:131:ALA:HB1	1:A:136:MET:CB	0.45	2.42	2	4
1:A:83:ARG:CZ	1:A:85:LEU:HD12	0.45	2.41	4	1
1:A:103:VAL:C	1:A:105:ASP:N	0.45	2.70	12	2
1:A:110:ILE:O	1:A:110:ILE:CG2	0.45	2.65	20	1
1:A:15:ILE:HD12	1:A:46:PRO:CG	0.44	2.42	16	1
1:A:33:LEU:C	1:A:34:LEU:HD23	0.44	2.30	16	3
1:A:17:ARG:NH1	1:A:106:TYR:O	0.44	2.50	5	2
1:A:31:PHE:CE2	1:A:144:HIS:ND1	0.44	2.85	30	7
1:A:30:GLU:OE1	1:A:122:LEU:C	0.44	2.54	33	1
1:A:67:GLU:CD	1:A:115:GLU:OE2	0.44	2.55	6	2
1:A:131:ALA:HB1	1:A:136:MET:HB3	0.44	1.88	18	2
1:A:102:GLU:OE1	1:A:103:VAL:O	0.44	2.35	19	1
1:A:44:THR:CB	1:A:47:LYS:HZ2	0.44	2.24	4	1
1:A:48:GLY:N	1:A:63:ALA:CB	0.44	2.81	2	3
1:A:34:LEU:N	1:A:44:THR:O	0.44	2.32	17	2
1:A:150:ILE:CG1	1:A:151:GLU:H	0.44	2.26	27	2
1:A:34:LEU:HD11	1:A:68:ALA:HB2	0.44	1.90	15	1
1:A:116:HIS:O	1:A:117:GLN:NE2	0.44	2.50	1	1
1:A:153:LEU:C	1:A:153:LEU:HD23	0.44	2.33	26	2
1:A:132:GLN:O	1:A:132:GLN:CG	0.44	2.66	28	1
1:A:35:GLN:HB2	1:A:43:TRP:CZ2	0.43	2.48	26	7
1:A:50:VAL:CG2	1:A:59:THR:OG1	0.43	2.66	16	5
1:A:63:ALA:HA	1:A:67:GLU:OE1	0.43	2.12	27	1
1:A:44:THR:CB	1:A:47:LYS:NZ	0.43	2.81	14	1
1:A:86:ASN:ND2	1:A:86:ASN:N	0.43	2.66	27	1
1:A:15:ILE:HD12	1:A:46:PRO:HG2	0.43	1.88	19	2
1:A:63:ALA:CA	1:A:67:GLU:OE2	0.43	2.66	6	1
1:A:18:ARG:NH1	1:A:18:ARG:CG	0.43	2.78	23	1
1:A:85:LEU:HG	1:A:135:GLU:HB3	0.43	1.90	23	2
1:A:147:LEU:O	1:A:152:ALA:CB	0.43	2.66	10	3
1:A:34:LEU:HD13	1:A:67:GLU:O	0.43	2.13	15	1
1:A:31:PHE:CE1	1:A:140:LEU:HD23	0.43	2.48	19	2
1:A:13:LEU:HG	1:A:64:THR:OG1	0.43	2.13	30	3
1:A:13:LEU:CG	1:A:64:THR:OG1	0.43	2.66	14	4
1:A:122:LEU:CD1	1:A:130:LEU:CD1	0.43	2.97	33	3
1:A:67:GLU:OE1	1:A:115:GLU:OE2	0.43	2.36	19	3
1:A:100:LEU:HD21	1:A:143:GLY:HA3	0.43	1.89	31	1
1:A:67:GLU:OE1	1:A:67:GLU:N	0.43	2.51	3	1
1:A:147:LEU:O	1:A:148:CYS:C	0.43	2.57	27	2
1:A:84:GLU:O	1:A:86:ASN:ND2	0.43	2.51	21	3
1:A:17:ARG:HH11	1:A:17:ARG:HG3	0.43	1.72	10	2

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:9:ARG:O	1:A:9:ARG:HG2	0.43	2.14	27	3
1:A:50:VAL:HG23	1:A:59:THR:CB	0.43	2.44	9	2
1:A:34:LEU:CD1	1:A:67:GLU:O	0.43	2.67	15	1
1:A:33:LEU:HD23	1:A:45:PRO:N	0.43	2.29	16	1
1:A:47:LYS:HE3	1:A:96:VAL:HG21	0.43	1.90	21	1
1:A:13:LEU:HB2	1:A:64:THR:OG1	0.43	2.13	28	1
1:A:126:GLU:O	1:A:129:GLN:HB3	0.42	2.13	3	2
1:A:46:PRO:CB	1:A:67:GLU:HB2	0.42	2.44	30	1
1:A:114:HIS:O	1:A:115:GLU:HB2	0.42	2.14	15	1
1:A:45:PRO:HG2	1:A:98:TYR:OH	0.42	2.13	22	1
1:A:32:LEU:CD2	1:A:110:ILE:HD12	0.42	2.45	5	1
1:A:32:LEU:O	1:A:32:LEU:HG	0.42	2.13	26	2
1:A:82:LYS:HZ3	1:A:97:ILE:HG21	0.42	1.70	20	1
1:A:63:ALA:O	1:A:67:GLU:HG2	0.42	2.13	2	1
1:A:65:GLN:CA	1:A:70:ILE:O	0.42	2.67	31	2
1:A:72:ALA:C	1:A:74:GLN:N	0.42	2.73	33	1
1:A:83:ARG:CG	1:A:83:ARG:HH11	0.42	2.25	17	1
1:A:35:GLN:HA	1:A:42:HIS:O	0.42	2.14	14	2
1:A:97:ILE:O	1:A:98:TYR:HD1	0.42	1.98	5	1
1:A:75:LEU:CD2	1:A:103:VAL:CG1	0.42	2.96	29	5
1:A:104:LYS:NZ	1:A:104:LYS:N	0.42	2.68	21	1
1:A:110:ILE:HG13	1:A:119:TYR:CE2	0.42	2.49	32	1
1:A:74:GLN:O	1:A:74:GLN:HG3	0.42	2.13	33	1
1:A:50:VAL:O	1:A:50:VAL:HG12	0.42	2.13	29	3
1:A:74:GLN:O	1:A:104:LYS:CD	0.42	2.67	24	1
1:A:17:ARG:O	1:A:17:ARG:CG	0.42	2.67	26	1
1:A:34:LEU:HD22	1:A:119:TYR:HB3	0.42	1.90	27	3
1:A:45:PRO:CG	1:A:136:MET:CE	0.42	2.97	7	1
1:A:104:LYS:HZ2	1:A:104:LYS:HB3	0.42	1.75	27	1
1:A:70:ILE:HG23	1:A:74:GLN:NE2	0.41	2.30	11	1
1:A:119:TYR:O	1:A:119:TYR:CG	0.41	2.73	23	2
1:A:79:GLU:C	1:A:81:PHE:N	0.41	2.73	30	1
1:A:47:LYS:NZ	1:A:48:GLY:O	0.41	2.51	20	1
1:A:82:LYS:NZ	1:A:97:ILE:HD13	0.41	2.29	20	1
1:A:125:GLU:CG	1:A:126:GLU:H	0.41	2.28	13	1
1:A:81:PHE:CE1	1:A:142:GLU:OE2	0.41	2.73	22	1
1:A:35:GLN:CB	1:A:118:ALA:HB3	0.41	2.44	27	1
1:A:129:GLN:N	1:A:129:GLN:HE21	0.41	2.13	5	1
1:A:68:ALA:O	1:A:110:ILE:HA	0.41	2.15	29	2
1:A:104:LYS:NZ	1:A:104:LYS:CB	0.41	2.83	21	1
1:A:108:VAL:HG13	1:A:110:ILE:CD1	0.41	2.46	29	1

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Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:A:125:GLU:HG2	1:A:126:GLU:H	0.41	1.75	3	1
1:A:46:PRO:HA	1:A:67:GLU:OE1	0.41	2.15	12	1
1:A:136:MET:SD	1:A:140:LEU:HD11	0.41	2.54	14	1
1:A:37:SER:OG	1:A:117:GLN:OE1	0.41	2.38	15	1
1:A:31:PHE:CD2	1:A:140:LEU:CD2	0.41	3.01	25	1
1:A:17:ARG:NH1	1:A:106:TYR:CZ	0.41	2.89	23	1
1:A:13:LEU:HD23	1:A:13:LEU:HA	0.41	1.72	26	2
1:A:67:GLU:OE2	1:A:67:GLU:N	0.41	2.54	29	1
1:A:32:LEU:HD11	1:A:119:TYR:HB2	0.41	1.92	2	2
1:A:83:ARG:NH1	1:A:83:ARG:HG2	0.41	2.28	4	1
1:A:136:MET:SD	1:A:136:MET:O	0.41	2.79	11	1
1:A:69:GLY:HA3	1:A:111:ARG:O	0.41	2.16	12	1
1:A:119:TYR:CG	1:A:119:TYR:O	0.41	2.74	19	1
1:A:57:LEU:O	1:A:58:GLU:C	0.41	2.59	21	1
1:A:63:ALA:HB1	1:A:67:GLU:CD	0.41	2.36	27	1
1:A:18:ARG:CG	1:A:18:ARG:NH1	0.41	2.84	27	1
1:A:148:CYS:SG	1:A:148:CYS:O	0.41	2.79	28	1
1:A:9:ARG:NH1	1:A:9:ARG:CB	0.40	2.84	2	1
1:A:70:ILE:CG2	1:A:74:GLN:OE1	0.40	2.65	21	1
1:A:146:PHE:O	1:A:150:ILE:HG13	0.40	2.16	25	2
1:A:46:PRO:HA	1:A:67:GLU:OE2	0.40	2.15	1	2
1:A:148:CYS:O	1:A:153:LEU:HD21	0.40	2.16	15	1
1:A:124:LEU:O	1:A:128:CYS:N	0.40	2.54	11	1
1:A:12:GLY:C	1:A:60:ALA:HB1	0.40	2.37	14	1
1:A:112:LEU:HB3	1:A:116:HIS:O	0.40	2.17	15	1
1:A:61:LEU:O	1:A:65:GLN:CG	0.40	2.70	23	1
1:A:15:ILE:HD13	1:A:70:ILE:CD1	0.40	2.46	11	1
1:A:47:LYS:O	1:A:47:LYS:HG3	0.40	2.17	17	1
1:A:75:LEU:HD23	1:A:103:VAL:HG12	0.40	1.93	20	1
1:A:45:PRO:CG	1:A:136:MET:HE2	0.40	2.46	7	1
1:A:86:ASN:N	1:A:86:ASN:ND2	0.40	2.69	18	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	120/153 (78%)	109±1 (91±1%)	6±1 (5±1%)	5±1 (4±1%)	5 30
All	All	3960/5049 (78%)	3587 (91%)	207 (5%)	166 (4%)	5 30

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

Mol	Chain	Res	Type	Models (Total)
1	A	114	HIS	33
1	A	115	GLU	33
1	A	150	ILE	33
1	A	80	GLY	28
1	A	46	PRO	14
1	A	108	VAL	11
1	A	132	GLN	8
1	A	28	ALA	3
1	A	79	GLU	3

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	100/126 (79%)	82±2 (82±2%)	18±2 (18±2%)	4 37
All	All	3300/4158 (79%)	2702 (82%)	598 (18%)	4 37

All 45 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	50	VAL	33
1	A	59	THR	33
1	A	76	THR	33
1	A	85	LEU	33
1	A	122	LEU	33
1	A	128	CYS	33
1	A	141	GLN	33
1	A	11	CYS	32
1	A	129	GLN	32

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Mol	Chain	Res	Type	Models (Total)
1	A	144	HIS	32
1	A	29	ILE	30
1	A	136	MET	30
1	A	114	HIS	27
1	A	132	GLN	24
1	A	44	THR	20
1	A	47	LYS	15
1	A	97	ILE	11
1	A	19	CYS	11
1	A	82	LYS	10
1	A	77	ILE	9
1	A	95	THR	8
1	A	18	ARG	8
1	A	32	LEU	7
1	A	13	LEU	7
1	A	104	LYS	6
1	A	148	CYS	6
1	A	111	ARG	5
1	A	150	ILE	5
1	A	9	ARG	4
1	A	83	ARG	4
1	A	65	GLN	4
1	A	134	LYS	3
1	A	17	ARG	2
1	A	115	GLU	2
1	A	14	ILE	2
1	A	153	LEU	2
1	A	67	GLU	1
1	A	99	TRP	1
1	A	133	PHE	1
1	A	37	SER	1
1	A	137	LYS	1
1	A	120	ARG	1
1	A	79	GLU	1
1	A	125	GLU	1
1	A	74	GLN	1

6.3.3 RNA

There are no RNA molecules in this entry.

6.4 Non-standard residues in protein, DNA, RNA chains

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

6.5 Carbohydrates

There are no monosaccharides in this entry.

6.6 Ligand geometry

There are no ligands in this entry.

6.7 Other polymers

There are no such molecules in this entry.

6.8 Polymer linkage issues

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided