Full wwPDB EM Validation Report ⓘ

Nov 27, 2022 – 02:33 PM EST

PDB ID	:	6X89
EMDB ID	:	EMD-22090
Title	:	Vigna radiata mitochondrial complex I*
Authors	:	Letts, J.A.; Maldonado, M.; Padavannil, A.; Zhou, L.; Guo, F.
Deposited on	:	2020-06-01
Resolution	:	3.90 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

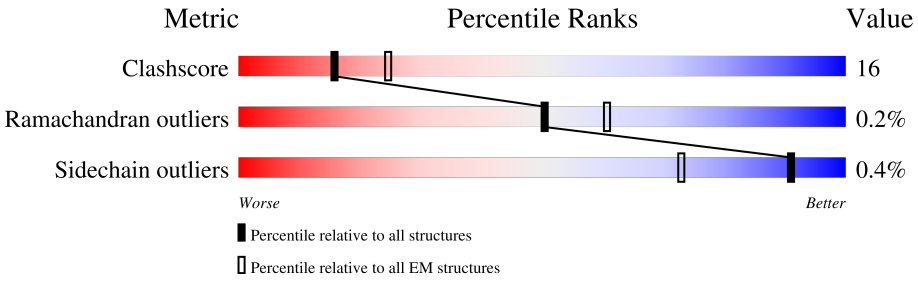
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.90 Å.

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)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. 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% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	18	11% 100%
2	A2	98	12% 62% 32% 6%
3	A5	169	11% 48% 27% 25%
4	A6	132	8% 89%
5	A7	127	26% 65% 19% 14%
6	A9	396	36% 49% 33% 17%
7	AL	156	31% 58% 28% 13%
8	S1	746	8% 60% 32% 8%

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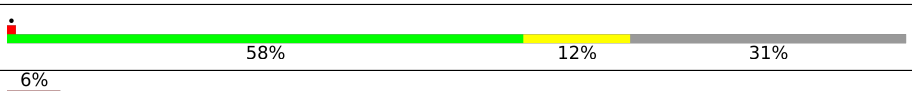
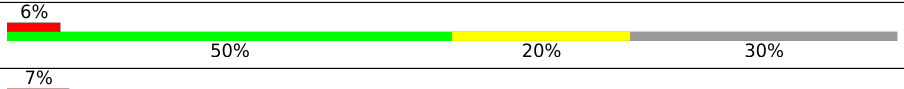
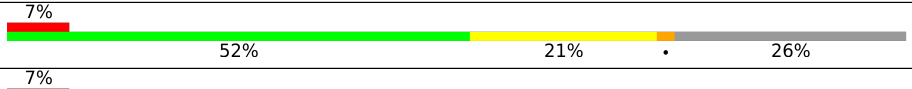
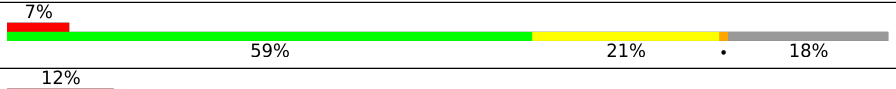
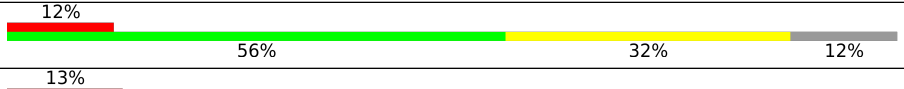
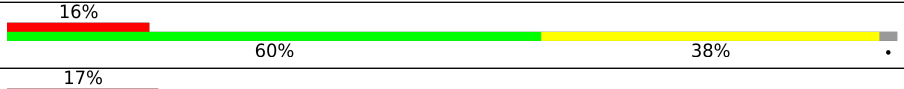
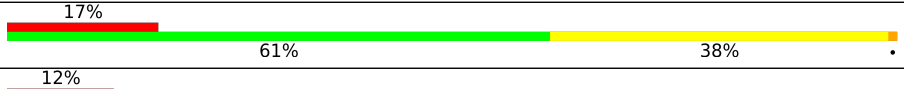
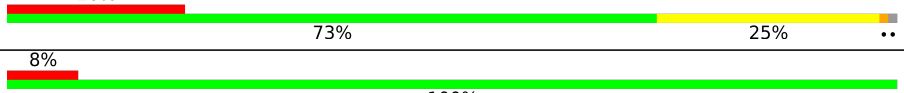
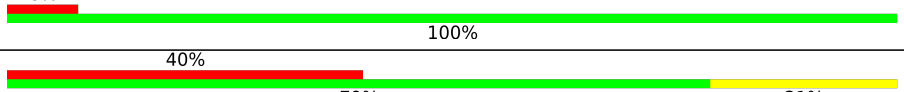
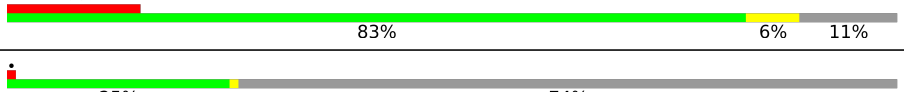
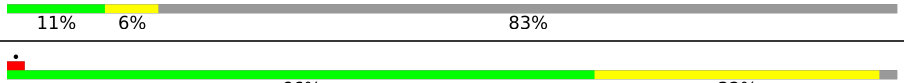
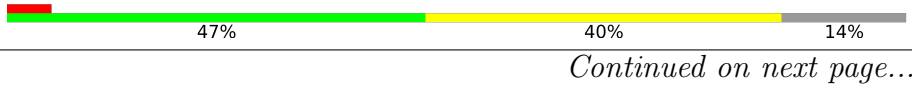
Mol	Chain	Length	Quality of chain
9	S2	394	
10	S3	190	
11	S4	146	
12	S6	103	
13	S7	213	
14	S8	222	
15	V1	491	
16	V2	251	
17	1M	325	
18	2M	488	
19	3M	118	
20	4L	100	
21	6M	205	
22	A1	65	
23	A3	63	
24	A8	106	
25	AM	143	
26	B	25	
27	C	43	
28	C2	81	
29	P2	115	
30	S5	399	
31	X1	101	
32	G1	270	
33	G2	273	

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Mol	Chain	Length	Quality of chain
34	L2	256	5% 51% 30% 19%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
37	SF4	S1	802	-	-	X	-
37	SF4	S7	301	-	-	X	-
37	SF4	S8	302	-	-	X	-
37	SF4	V1	500	-	-	X	-

2 Entry composition

There are 40 unique types of molecules in this entry. The entry contains 45017 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Unknown Peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
1	A	18	90	54	18	18	0	0

- Molecule 2 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A2	92	718	456	126	133	3	0	0

- Molecule 3 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	A5	126	1009	642	166	197	4	0	0

- Molecule 4 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	A6	15	129	88	18	23	0	0

- Molecule 5 is a protein called NDUA7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	A7	109	868	549	150	166	3	0	0

- Molecule 6 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial isoform X1.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	A9	328	Total	C	N	O	S	0	0
			2548	1641	435	461	11		

- Molecule 7 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AL	135	Total	C	N	O	S	0	0
			1128	718	203	206	1		

- Molecule 8 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	S1	688	Total	C	N	O	S	0	0
			5268	3304	931	1000	33		

- Molecule 9 is a protein called NDUS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	S2	382	Total	C	N	O	S	0	0
			3044	1926	539	556	23		

- Molecule 10 is a protein called NDUS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	S3	184	Total	C	N	O	S	0	0
			1559	1004	269	280	6		

- Molecule 11 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	S4	101	Total	C	N	O	S	0	0
			811	521	147	142	1		

- Molecule 12 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	S6	72	Total	C	N	O	S	0	0
			563	355	97	105	6		

- Molecule 13 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	S7	158	Total	C	N	O	S	0	0
			1254	804	221	215	14		

- Molecule 14 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	S8	181	Total	C	N	O	S	0	0
			1484	930	251	292	11		

- Molecule 15 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	V1	433	Total	C	N	O	S	0	0
			3343	2108	594	617	24		

- Molecule 16 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	V2	216	Total	C	N	O	S	0	0
			1676	1063	286	316	11		

- Molecule 17 is a protein called NU1M.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	1M	318	Total	C	N	O	S	0	0
			2463	1657	378	413	15		

- Molecule 18 is a protein called NU2M.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	2M	488	Total	C	N	O	S	0	0
			3795	2537	578	651	29		

- Molecule 19 is a protein called NU3M.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	3M	87	Total	C	N	O	S	0	0
			710	490	100	116	4		

- Molecule 20 is a protein called NU4L.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	4L	86	Total	C	N	O	S	0	0
			670	447	104	112	7		

- Molecule 21 is a protein called NU6M.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	6M	153	Total	C	N	O	S	0	0
			1142	773	172	189	8		

- Molecule 22 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	A1	62	Total	C	N	O	S	0	0
			490	309	93	83	5		

- Molecule 23 is a protein called uncharacterized protein LOC106754061.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	A3	44	Total	C	N	O	S	0	0
			332	221	52	56	3		

- Molecule 24 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	A8	105	Total	C	N	O	S	0	0
			823	508	145	159	11		

- Molecule 25 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AM	142	Total	C	N	O	S	0	0
			1134	731	202	197	4		

- Molecule 26 is a protein called Unknown Peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	B	25	Total 125	C 75	N 25	O 25	0	0

- Molecule 27 is a protein called Unknown Peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	C	43	Total 215	C 129	N 43	O 43	0	0

- Molecule 28 is a protein called NDUC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	C2	72	Total 571	C 364	N 102	O 101	S 4	0	0

- Molecule 29 is a protein called Protein At2g27730, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	P2	30	Total 214	C 140	N 39	O 35	0	0

- Molecule 30 is a protein called serine/arginine-rich-splicing factor SR34 isoform X2.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	S5	66	Total 560	C 345	N 108	O 100	S 7	0	0

- Molecule 31 is a protein called NDUX1.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	X1	99	Total 750	C 479	N 126	O 140	S 5	0	0

- Molecule 32 is a protein called gamma carbonic anhydrase 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	G1	231	Total 1769	C 1122	N 311	O 330	S 6	0	0

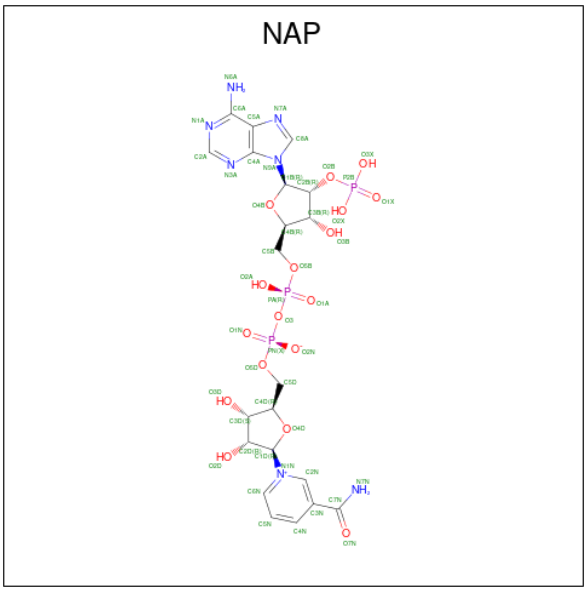
- Molecule 33 is a protein called gamma carbonic anhydrase 1, mitochondrial-like.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	G2	236	Total	C	N	O	S	0	0
			1799	1131	324	339	5		

- Molecule 34 is a protein called gamma carbonic anhydrase-like 2, mitochondrial.

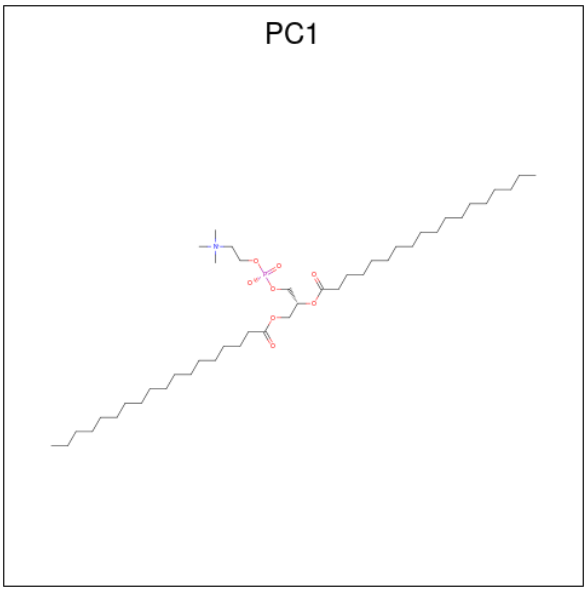
Mol	Chain	Residues	Atoms					AltConf	Trace
34	L2	207	Total	C	N	O	S	0	0
			1611	1033	276	297	5		

- Molecule 35 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$).



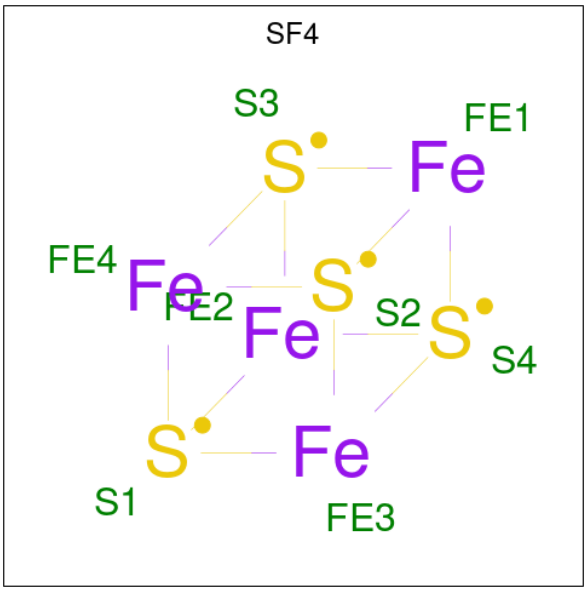
Mol	Chain	Residues	Atoms					AltConf
35	A9	1	Total	C	N	O	P	0
			48	21	7	17	3	

- Molecule 36 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (three-letter code: PC1) (formula: $C_{44}H_{88}NO_8P$).



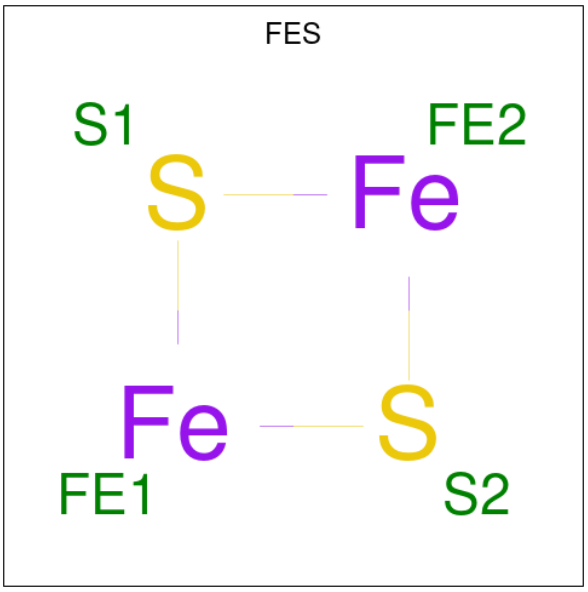
Mol	Chain	Residues	Atoms					AltConf
36	AL	1	Total	C	N	O	P	0
			29	19	1	8	1	
36	S2	1	Total	C	N	O	P	0
			45	35	1	8	1	
36	A1	1	Total	C	N	O	P	0
			37	27	1	8	1	
36	C2	1	Total	C	N	O	P	0
			37	27	1	8	1	
36	G1	1	Total	C	N	O	P	0
			67	47	2	16	2	
36	G1	1	Total	C	N	O	P	0
			67	47	2	16	2	

- Molecule 37 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



Mol	Chain	Residues	Atoms			AltConf
37	S1	1	Total	Fe	S	0
			16	8	8	
37	S1	1	Total	Fe	S	0
			16	8	8	
37	S7	1	Total	Fe	S	0
			8	4	4	
37	S8	1	Total	Fe	S	0
			16	8	8	
37	S8	1	Total	Fe	S	0
			16	8	8	
37	V1	1	Total	Fe	S	0
			8	4	4	

- Molecule 38 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).

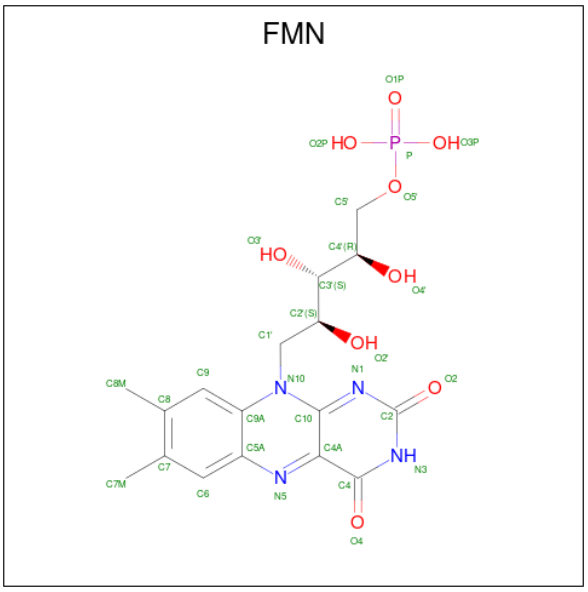


Mol	Chain	Residues	Atoms	AltConf
38	S1	1	Total Fe S 4 2 2	0
38	V2	1	Total Fe S 4 2 2	0

- Molecule 39 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	AltConf
39	S6	1	Total Zn 1 1	0
39	G1	1	Total Zn 1 1	0

- Molecule 40 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).



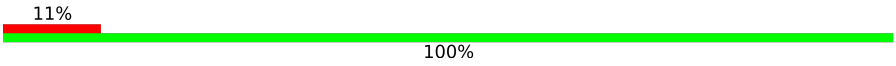
Mol	Chain	Residues	Atoms					AltConf
40	V1	1	Total	C	N	O	P	0
			31	17	4	9	1	

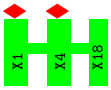
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-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. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Unknown Peptide

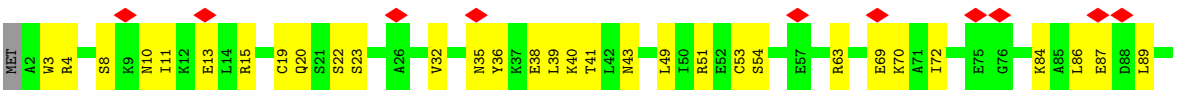
Chain A:

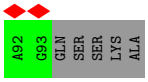




• Molecule 2: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2

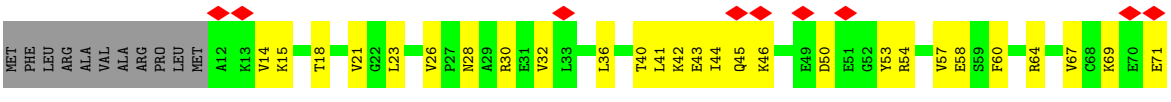
Chain A2:

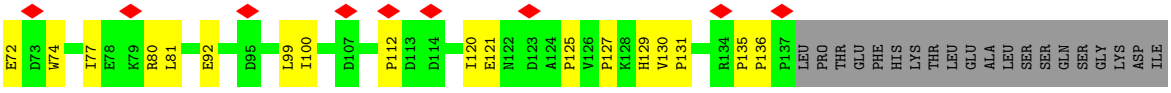




• Molecule 3: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5, mitochondrial

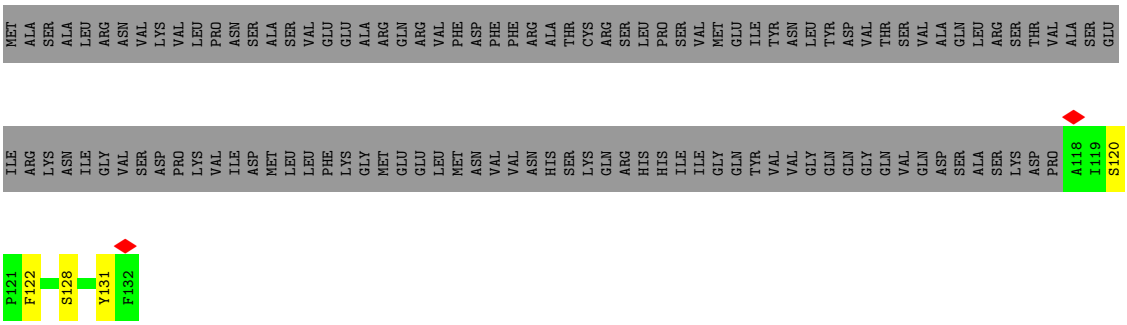
Chain A5:





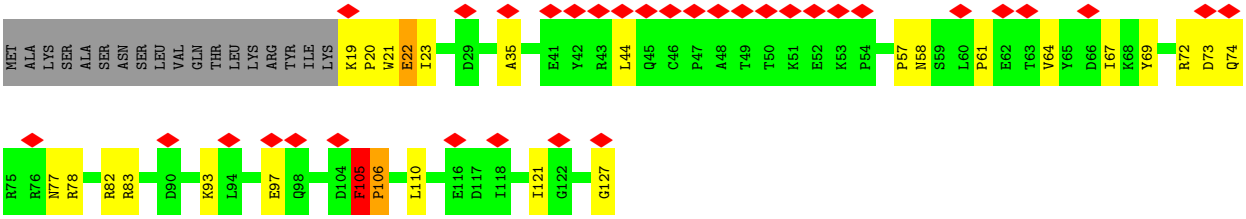
• Molecule 4: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6

Chain A6:



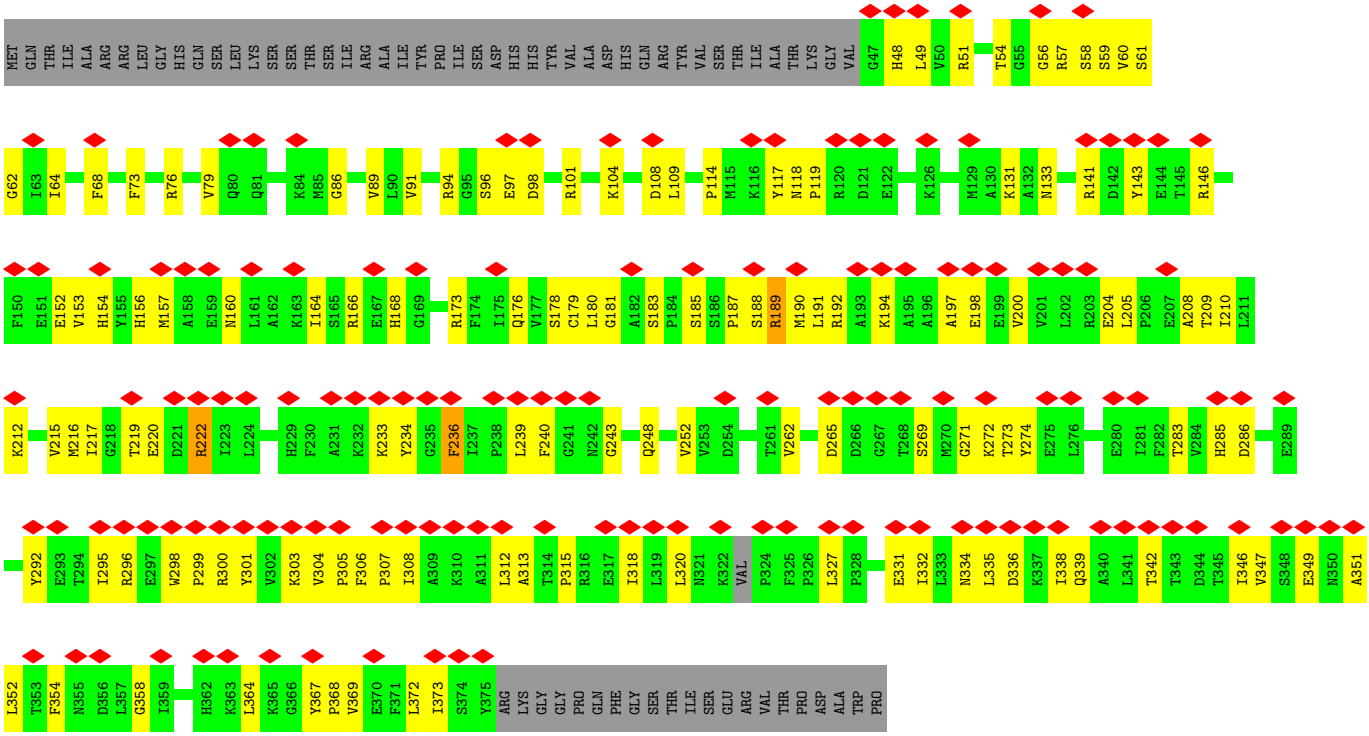
• Molecule 5: NDUA7

Chain A7:



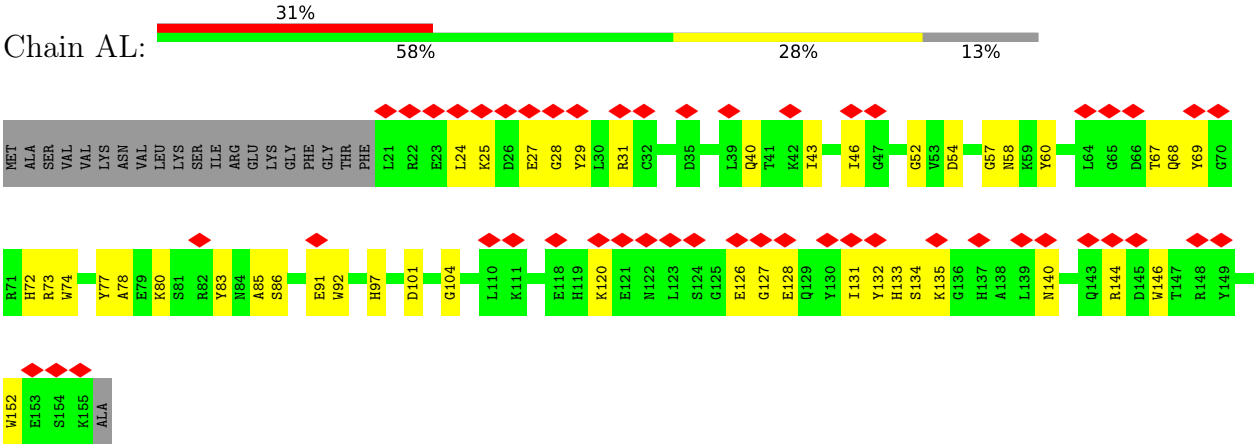
• Molecule 6: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial isoform X1

Chain A9:



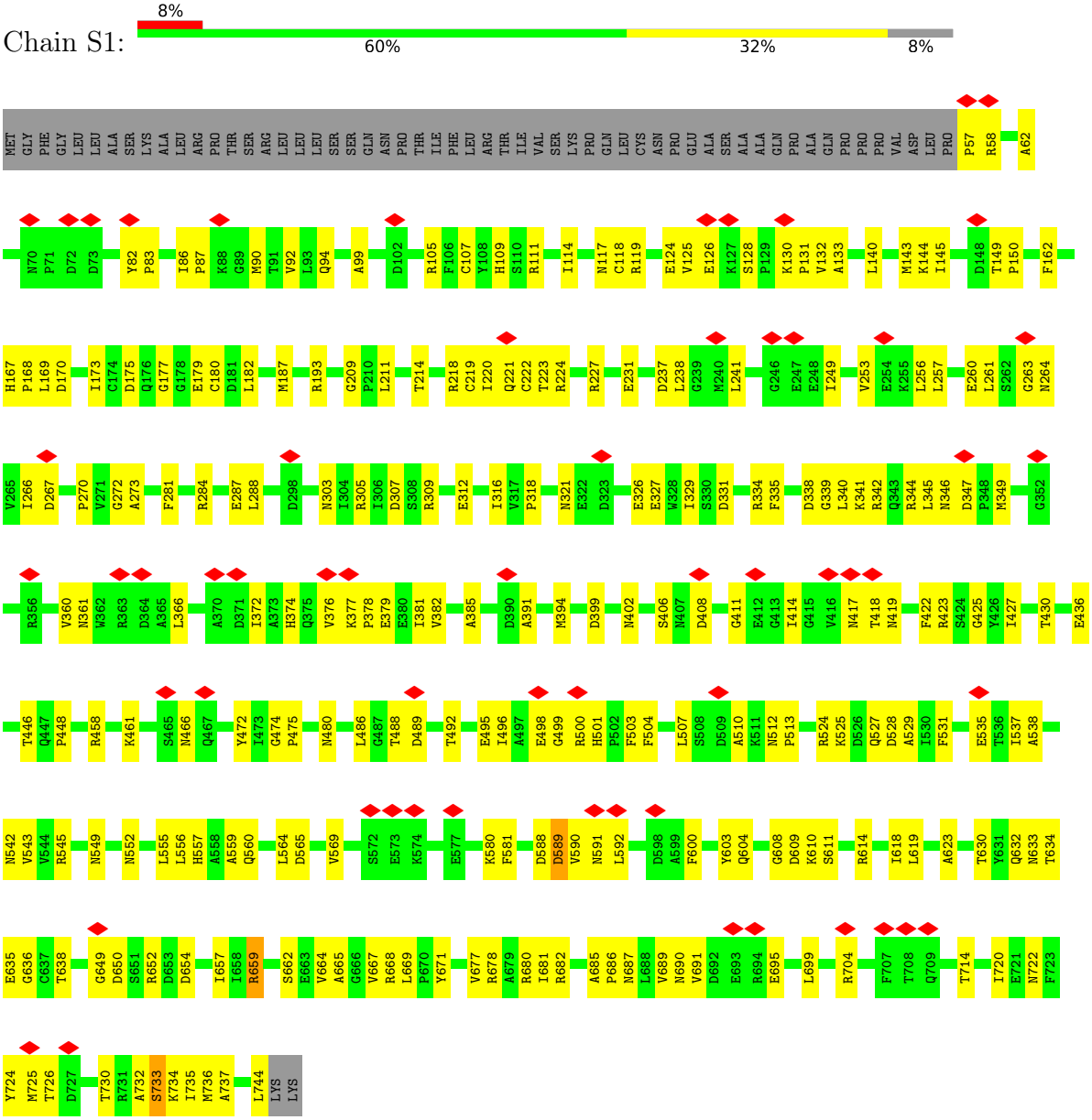
• Molecule 7: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12

Chain AL:



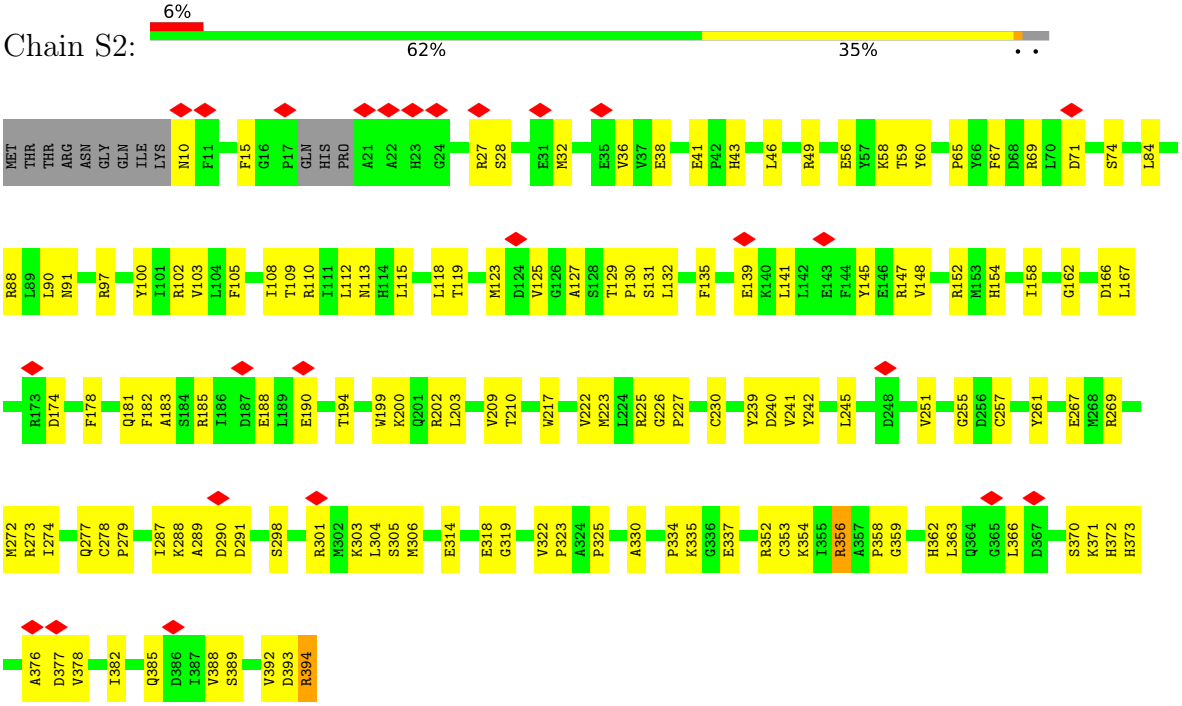
• Molecule 8: NADH dehydrogenase [ubiquinone] iron-sulfur protein 1, mitochondrial

Chain S1:



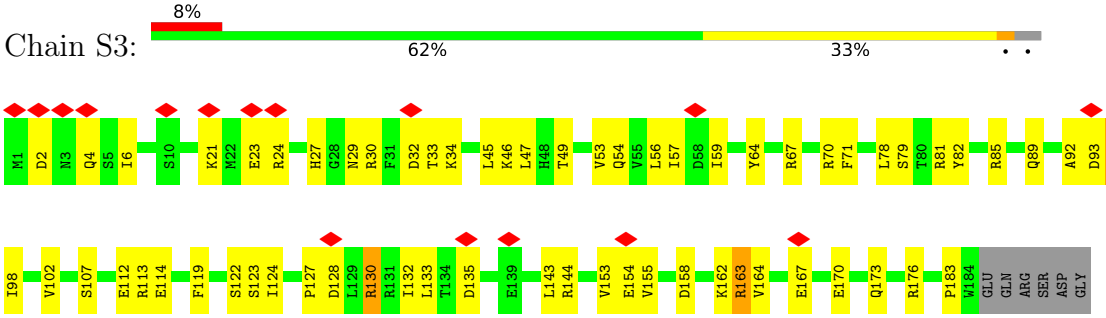
• Molecule 9: NDUS2

Chain S2:



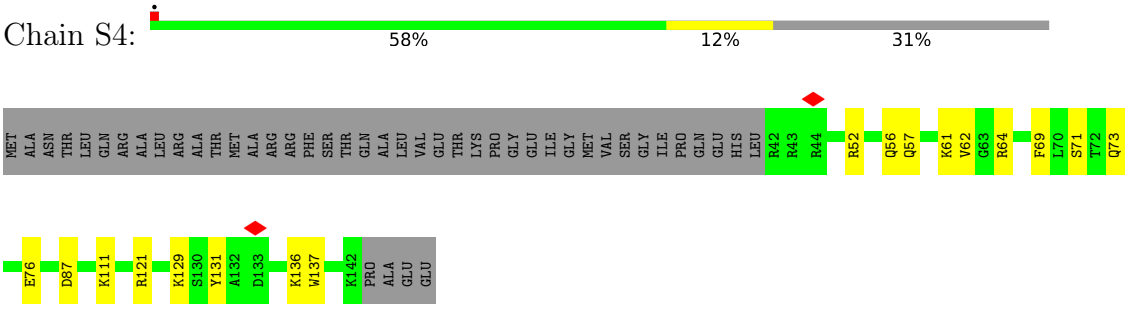
• Molecule 10: NDUS3

Chain S3:



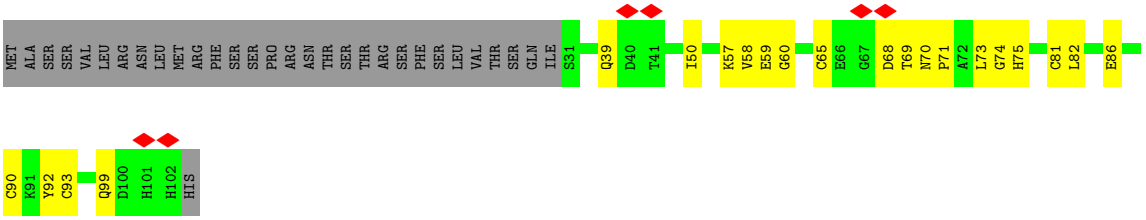
• Molecule 11: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

Chain S4:



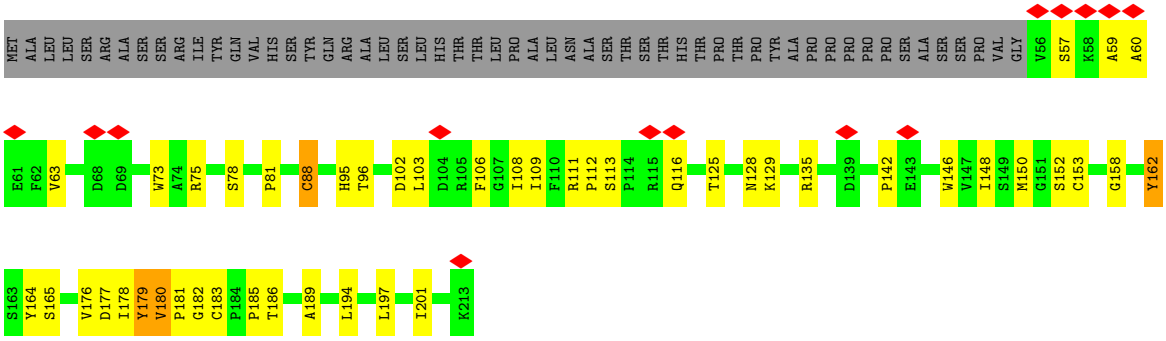
• Molecule 12: NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial

Chain S6:



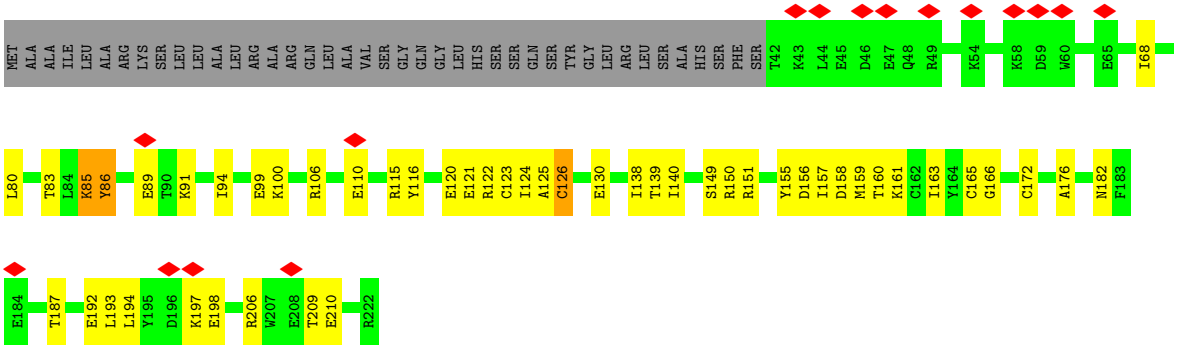
• Molecule 13: NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial

Chain S7:



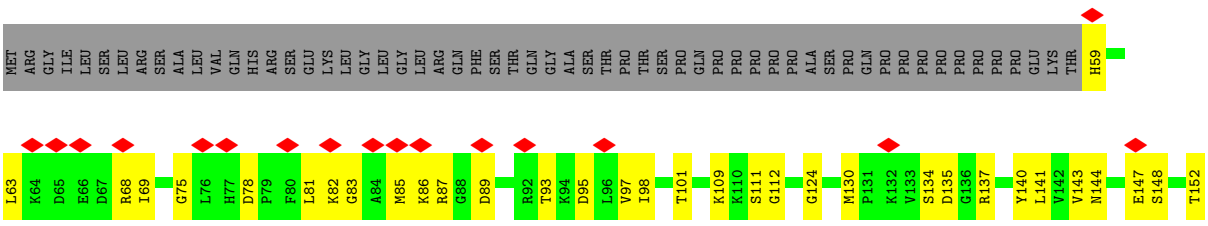
• Molecule 14: NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial

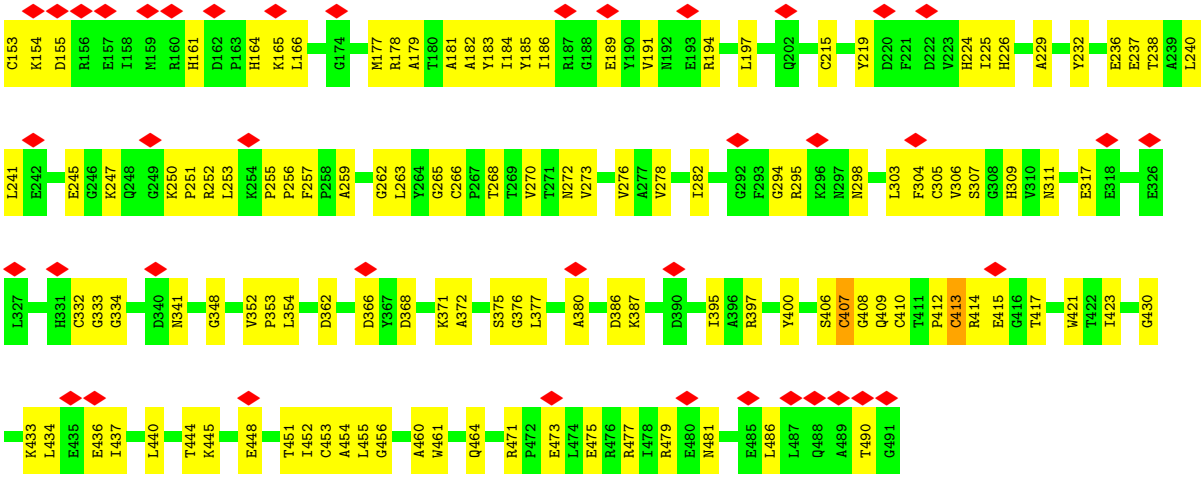
Chain S8:



• Molecule 15: NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial

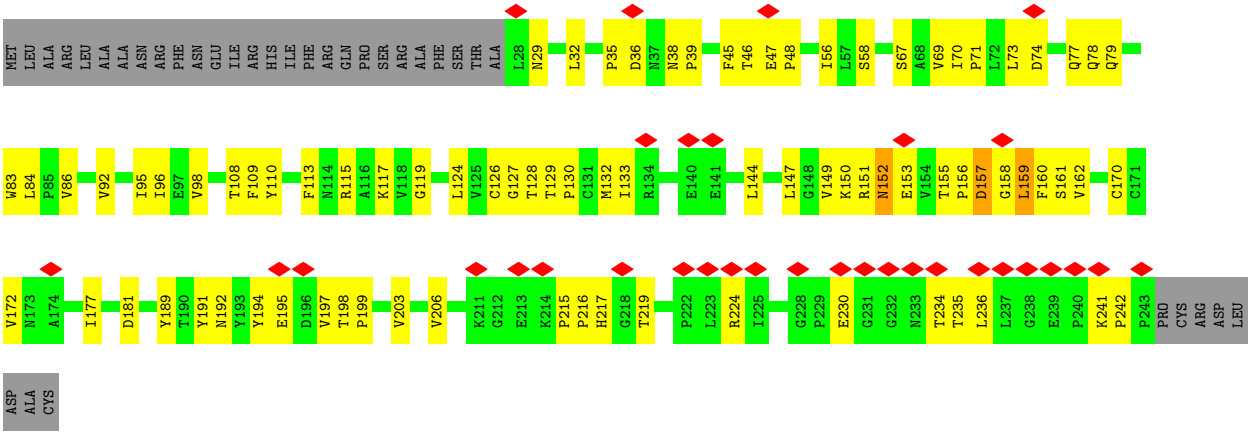
Chain V1:





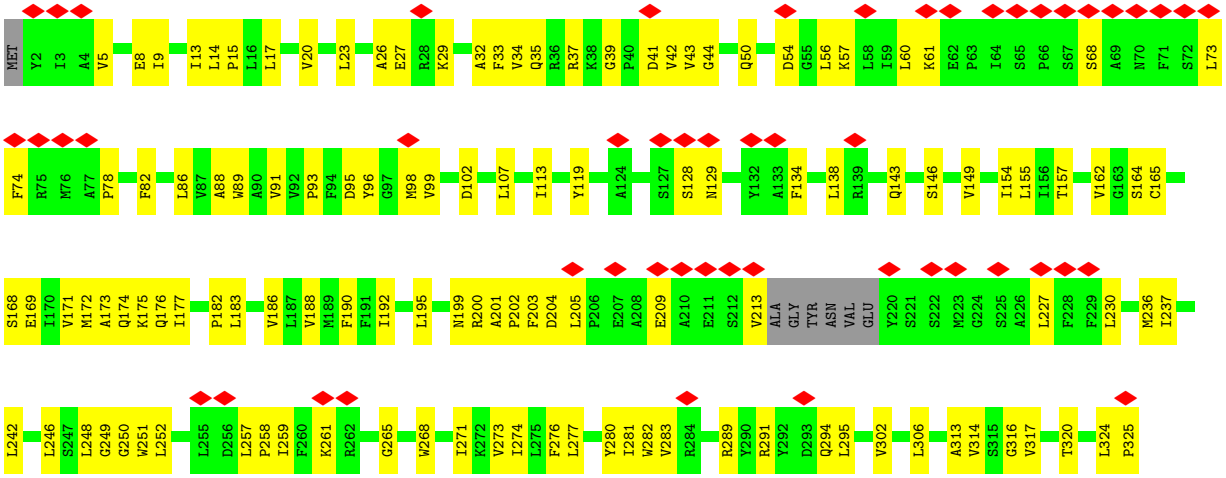
• Molecule 16: NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial

Chain V2:



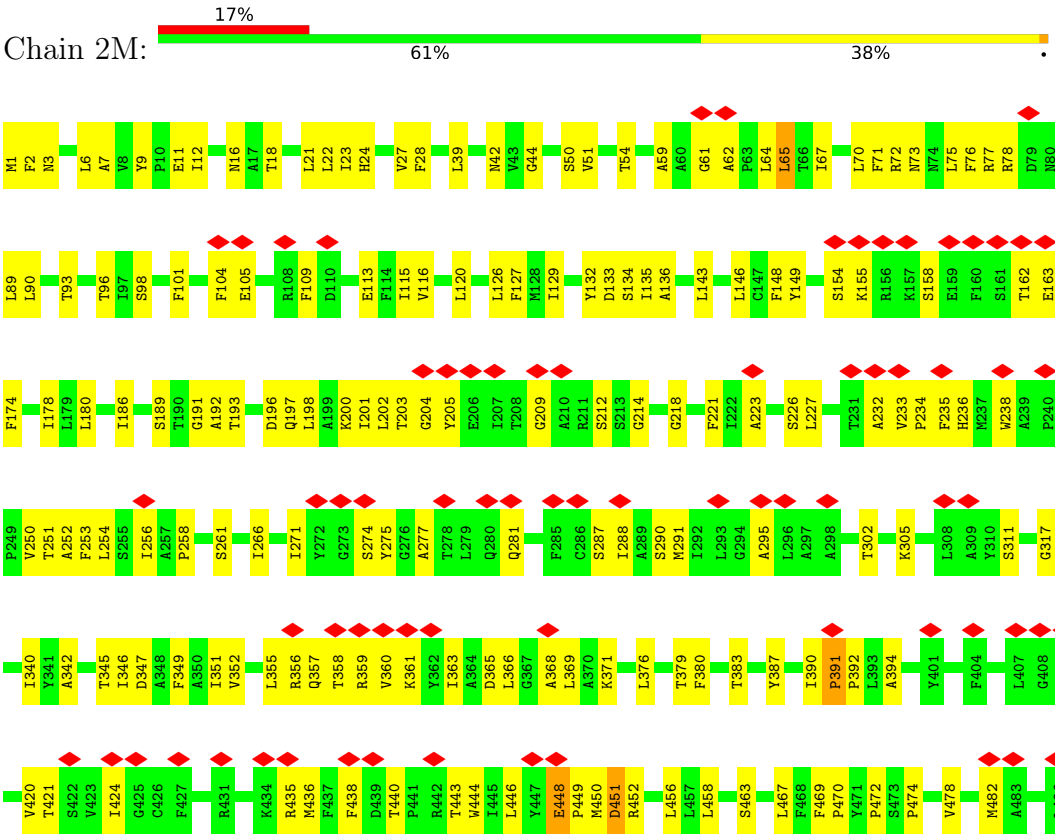
• Molecule 17: NU1M

Chain 1M:



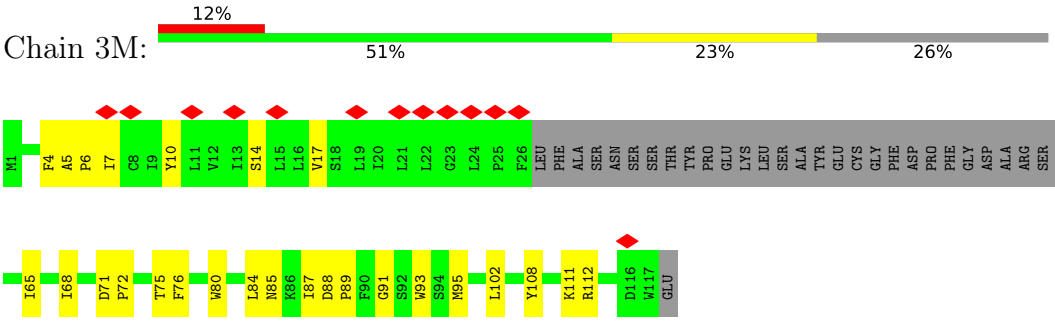
• Molecule 18: NU2M

Chain 2M:



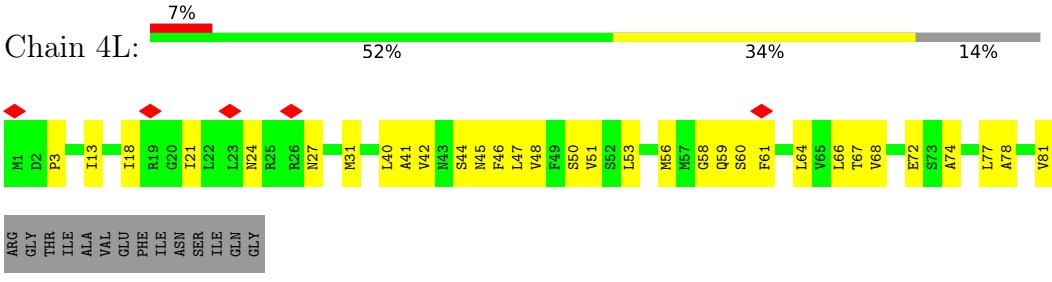
• Molecule 19: NU3M

Chain 3M:



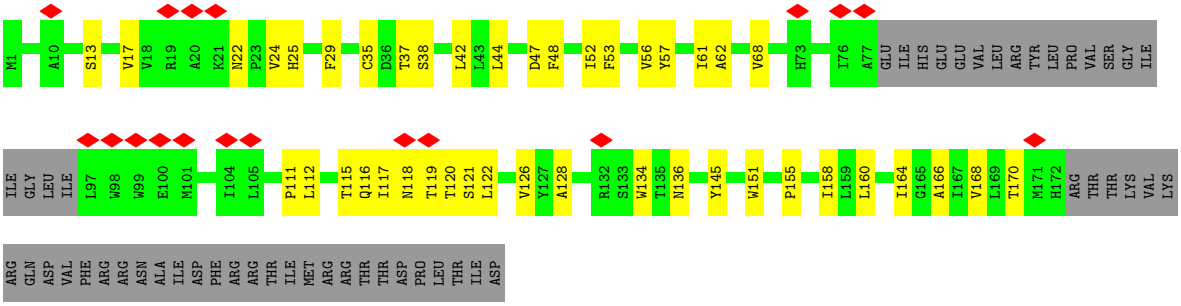
• Molecule 20: NU4L

Chain 4L:

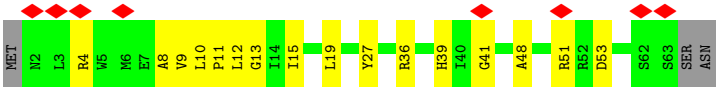


• Molecule 21: NU6M

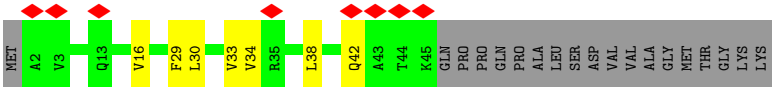
Chain 6M:



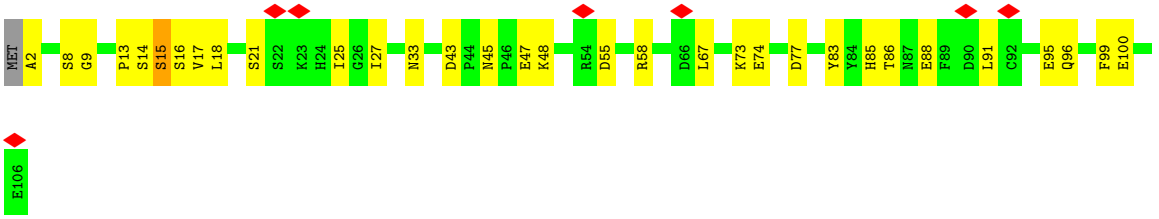
• Molecule 22: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1



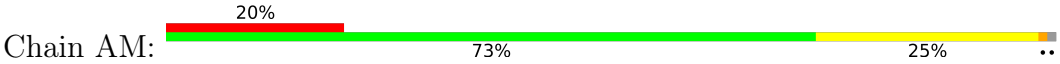
• Molecule 23: uncharacterized protein LOC106754061

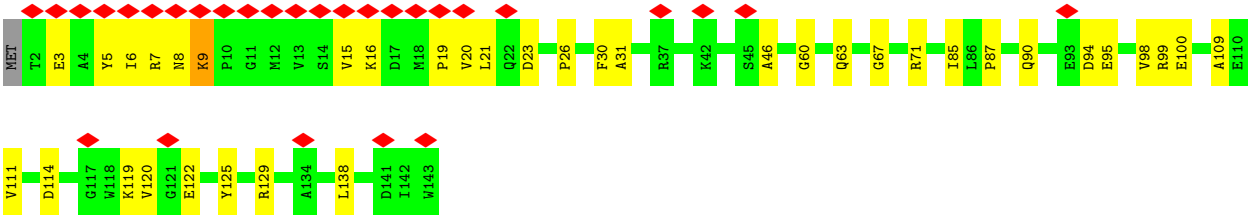


• Molecule 24: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8-B



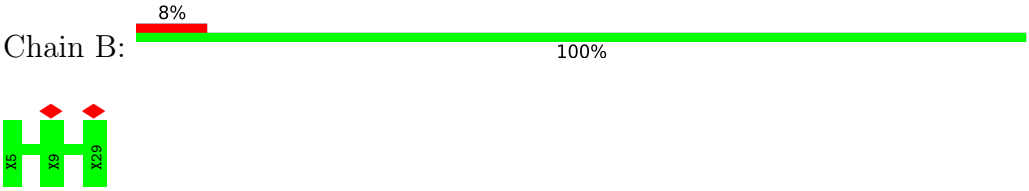
• Molecule 25: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13-A





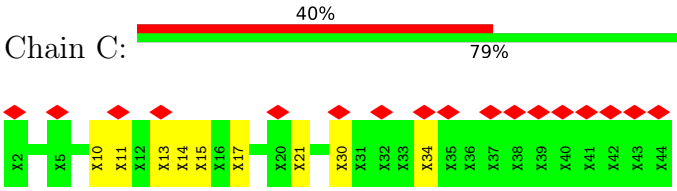
• Molecule 26: Unknown Peptide

Chain B:



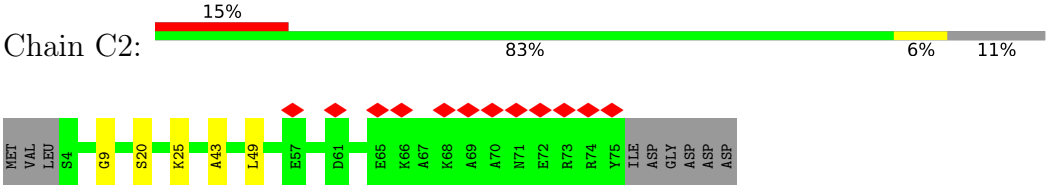
• Molecule 27: Unknown Peptide

Chain C:



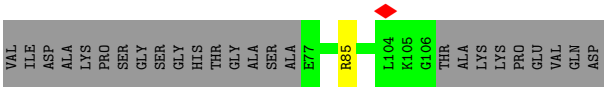
• Molecule 28: NDUC2

Chain C2:



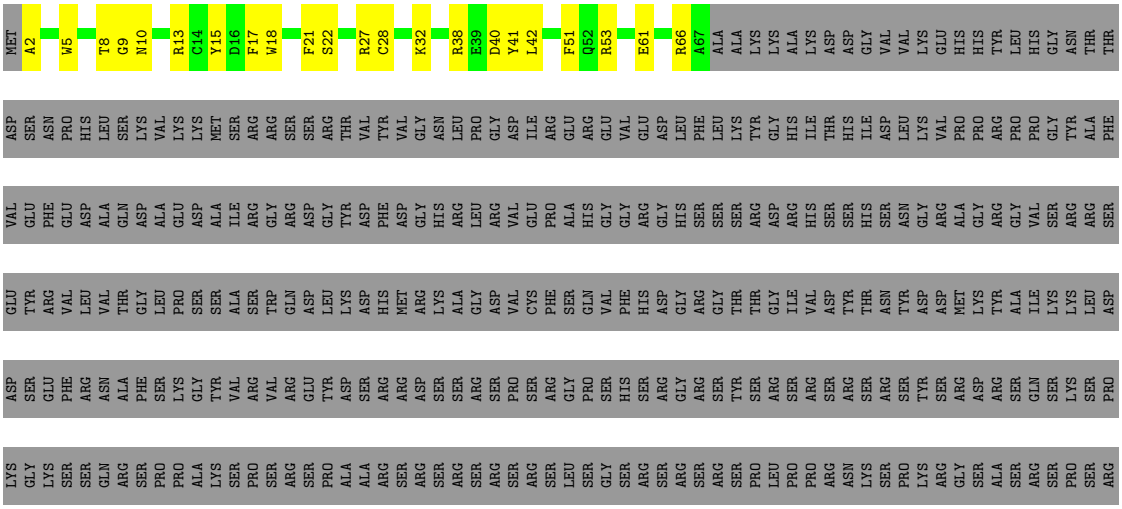
• Molecule 29: Protein At2g27730, mitochondrial

Chain P2:



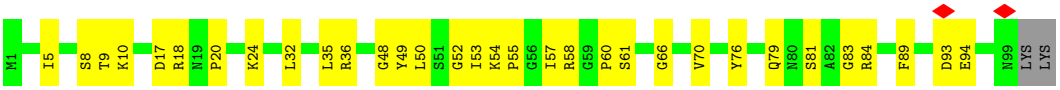
• Molecule 30: serine/arginine-rich-splicing factor SR34 isoform X2

Chain S5:



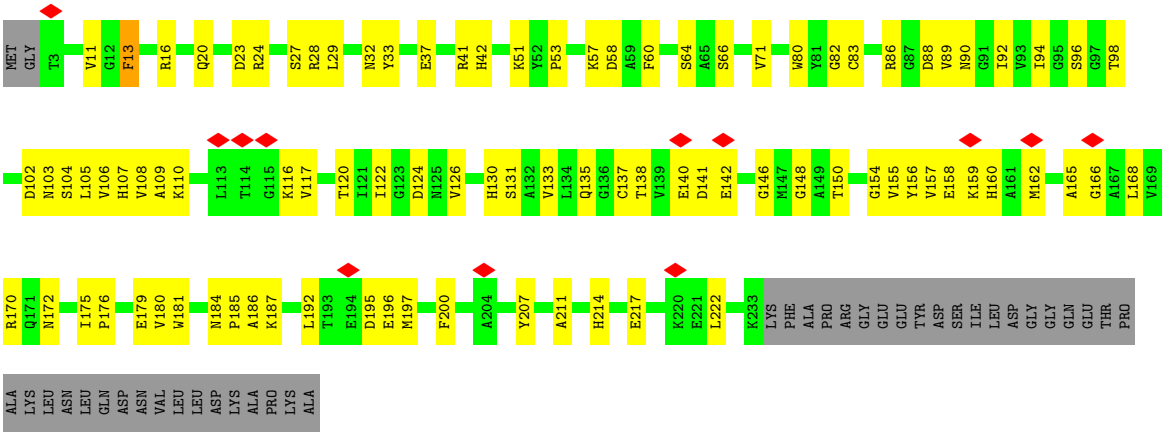
• Molecule 31: NDUX1

Chain X1:



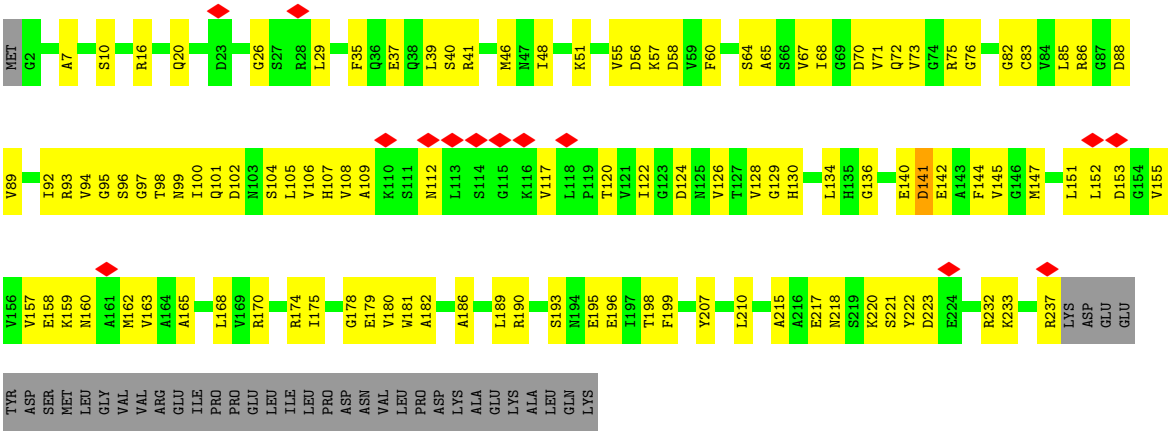
• Molecule 32: gamma carbonic anhydrase 1, mitochondrial

Chain G1:



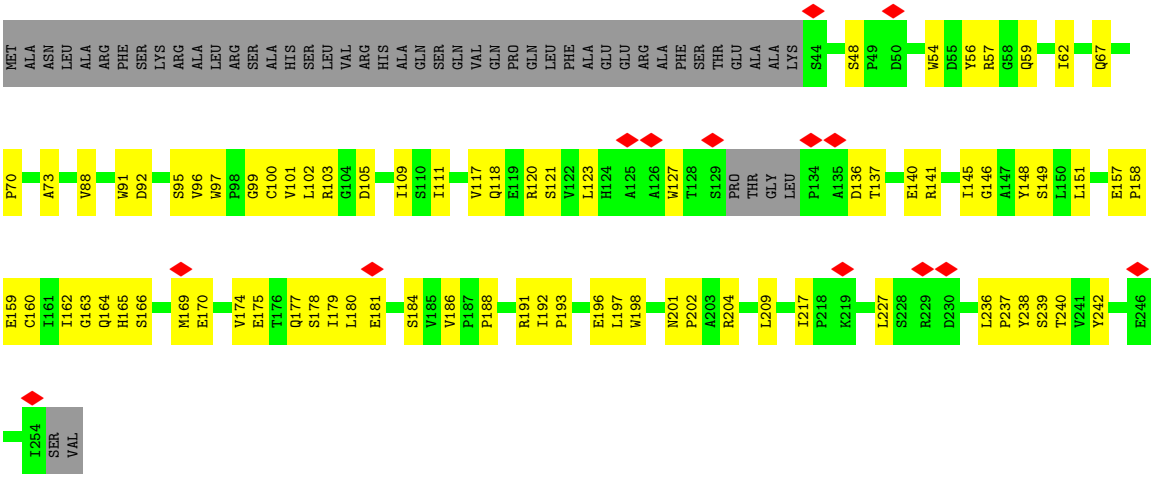
• Molecule 33: gamma carbonic anhydrase 1, mitochondrial-like

Chain G2:



• Molecule 34: gamma carbonic anhydrase-like 2, mitochondrial

Chain L2:


MET ALA ASN LEU ALA ARG PHE SER LYS ARG ALA LEU ARG SER ALA HIS SER LEU VAL ARG HIS ALA GLN SER GLN VAL GLN PRO GLN LEU PHE ALA GLU GLU ARG ALA PHE SER THR GLU ALA ALA LYS S44 S48 P49 D50 W54 D55 Y56 R57 G58 Q59 I62 Q67
P70 A73 V88 W91 D92 S95 V96 W97 P98 G99 C100 V101 L102 R103 G104 D105 I109 S110 I111 V117 Q118 E119 R120 S121 V122 L123 H124 A125 A126 W127 T128 S129 PRO THR GLY LEU P134 A135 D136 T137 E140 R141 I145 G146 A147 Y148 S149 L150 L151 E157 P158
E159 C160 I161 I162 G163 Q164 H165 S166 M169 E170 V174 E175 T176 Q177 S178 I179 L180 E181 S184 V185 V186 P187 P188 R191 I192 P193 E196 L197 W198 N201 P202 A203 R204 L209 I217 P218 K219 L227 S228 R229 D230 L236 P237 Y238 S239 T240 V241 Y242 E246
I254 SER VAL

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	34407	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	86.4	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	59.246	Depositor
Minimum map value	-24.127	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.082	Depositor
Recommended contour level	6.5	Depositor
Map size (Å)	426.5984, 426.5984, 426.5984	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8332, 0.8332, 0.8332	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FES, SF4, PC1, ZN, NAP, FMN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
2	A2	0.32	0/728	0.49	0/976
3	A5	0.34	0/1032	0.47	0/1401
4	A6	0.37	0/134	0.39	0/179
5	A7	0.34	0/890	0.52	0/1210
6	A9	0.31	0/2605	0.50	0/3532
7	AL	0.35	0/1163	0.52	0/1573
8	S1	0.37	0/5364	0.52	1/7274 (0.0%)
9	S2	0.42	0/3114	0.52	0/4213
10	S3	0.39	0/1605	0.50	0/2174
11	S4	0.39	0/837	0.45	0/1131
12	S6	0.34	0/578	0.56	0/786
13	S7	0.44	0/1289	0.49	0/1747
14	S8	0.43	0/1512	0.49	0/2036
15	V1	0.35	0/3416	0.48	0/4612
16	V2	0.35	0/1720	0.48	0/2344
17	1M	0.42	0/2532	0.51	0/3450
18	2M	0.38	0/3895	0.50	0/5287
19	3M	0.41	0/733	0.47	0/999
20	4L	0.39	0/679	0.53	0/916
21	6M	0.40	0/1166	0.50	0/1596
22	A1	0.32	0/501	0.40	0/674
23	A3	0.33	0/338	0.41	0/458
24	A8	0.33	0/836	0.46	0/1118
25	AM	0.37	0/1169	0.49	0/1585
28	C2	0.35	0/582	0.42	0/784
29	P2	0.34	0/218	0.40	0/296
30	S5	0.40	0/572	0.43	0/760
31	X1	0.42	0/768	0.48	0/1043
32	G1	0.39	0/1806	0.54	0/2449
33	G2	0.38	0/1829	0.52	0/2475
34	L2	0.42	0/1650	0.55	0/2250
All	All	0.38	0/45261	0.50	1/61328 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
5	A7	0	1
6	A9	0	1
8	S1	0	2
10	S3	0	1
13	S7	0	1
16	V2	0	3
18	2M	0	3
25	AM	0	2
33	G2	0	1
All	All	0	15

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	S1	57	PRO	N-CA-CB	5.96	110.45	103.30

There are no chirality outliers.

All (15) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
18	2M	391	PRO	Peptide
18	2M	448	GLU	Peptide
18	2M	449	PRO	Peptide
5	A7	105	PHE	Peptide
6	A9	236	PHE	Peptide
25	AM	31	ALA	Peptide
25	AM	9	LYS	Peptide
33	G2	109	ALA	Peptide
8	S1	589	ASP	Peptide
8	S1	733	SER	Peptide
10	S3	94	GLU	Peptide
13	S7	179	TYR	Peptide
16	V2	156	PRO	Peptide
16	V2	157	ASP	Peptide
16	V2	159	LEU	Peptide

5.2 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 the 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 within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	90	0	22	0	0
2	A2	718	0	749	27	0
3	A5	1009	0	998	40	0
4	A6	129	0	118	4	0
5	A7	868	0	860	29	0
6	A9	2548	0	2612	99	0
7	AL	1128	0	1074	47	0
8	S1	5268	0	5271	211	0
9	S2	3044	0	2998	111	0
10	S3	1559	0	1516	57	0
11	S4	811	0	792	17	0
12	S6	563	0	548	18	0
13	S7	1254	0	1251	42	0
14	S8	1484	0	1435	52	0
15	V1	3343	0	3323	129	0
16	V2	1676	0	1647	58	0
17	1M	2463	0	2560	98	0
18	2M	3795	0	3893	153	0
19	3M	710	0	730	25	0
20	4L	670	0	726	32	0
21	6M	1142	0	1168	40	0
22	A1	490	0	490	18	0
23	A3	332	0	356	7	0
24	A8	823	0	809	24	0
25	AM	1134	0	1124	38	0
26	B	125	0	28	0	0
27	C	215	0	47	5	0
28	C2	571	0	579	4	0
29	P2	214	0	205	1	0
30	S5	560	0	530	24	0
31	X1	750	0	743	25	0
32	G1	1769	0	1747	88	0
33	G2	1799	0	1801	90	0
34	L2	1611	0	1620	65	0
35	A9	48	0	25	7	0
36	A1	37	0	48	1	0
36	AL	29	0	32	2	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
36	C2	37	0	48	6	0
36	G1	67	0	82	5	0
36	S2	45	0	64	1	0
37	S1	16	0	0	6	0
37	S7	8	0	0	2	0
37	S8	16	0	0	2	0
37	V1	8	0	0	3	0
38	S1	4	0	0	0	0
38	V2	4	0	0	0	0
39	G1	1	0	0	0	0
39	S6	1	0	0	0	0
40	V1	31	0	19	3	0
All	All	45017	0	44688	1452	0

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 16.

All (1452) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:2M:256:ILE:HD13	18:2M:346:ILE:HG22	1.55	0.88
34:L2:109:ILE:HG22	34:L2:137:THR:HB	1.58	0.85
24:A8:45:ASN:HD22	24:A8:48:LYS:HG2	1.45	0.81
32:G1:86:ARG:NH1	32:G1:88:ASP:OD2	2.14	0.81
32:G1:158:GLU:HG2	32:G1:159:LYS:HG2	1.63	0.81
33:G2:182:ALA:O	33:G2:186:ALA:HA	1.80	0.81
33:G2:151:LEU:HB3	33:G2:155:VAL:HG11	1.63	0.80
16:V2:241:LYS:HD2	16:V2:242:PRO:HD2	1.64	0.78
9:S2:129:THR:HG22	17:1M:35:GLN:HG2	1.65	0.78
17:1M:88:ALA:HB2	17:1M:113:ILE:HG21	1.63	0.78
10:S3:173:GLN:O	13:S7:162:TYR:OH	2.02	0.77
9:S2:359:GLY:HA3	9:S2:392:VAL:HG12	1.64	0.76
17:1M:13:ILE:HD12	17:1M:86:LEU:HD23	1.67	0.76
32:G1:135:GLN:OE1	34:L2:164:GLN:NE2	2.19	0.76
8:S1:221:GLN:N	37:S1:802:SF4:S3	2.59	0.75
32:G1:142:GLU:O	32:G1:160:HIS:HA	1.86	0.75
34:L2:62:ILE:HG23	34:L2:70:PRO:HG2	1.66	0.75
15:V1:413:CYS:SG	15:V1:414:ARG:N	2.60	0.75
18:2M:379:THR:HG21	18:2M:458:LEU:HD21	1.66	0.74
6:A9:216:MET:HB3	6:A9:252:VAL:HG22	1.69	0.73
18:2M:368:ALA:HB2	18:2M:440:THR:HG21	1.69	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:V1:82:LYS:HG2	15:V1:85:MET:HG3	1.69	0.73
20:4L:56:MET:SD	20:4L:59:GLN:NE2	2.62	0.73
9:S2:105:PHE:HZ	9:S2:148:VAL:HG21	1.54	0.73
8:S1:170:ASP:OD2	8:S1:218:ARG:NH2	2.21	0.73
16:V2:235:THR:HG22	16:V2:236:LEU:HG	1.68	0.73
17:1M:27:GLU:HA	17:1M:281:ILE:HD13	1.68	0.73
7:AL:54:ASP:O	7:AL:57:GLY:N	2.22	0.72
7:AL:77:TYR:HD2	7:AL:83:TYR:HB2	1.55	0.72
17:1M:157:THR:HG23	17:1M:314:VAL:HG11	1.70	0.72
3:A5:92:GLU:OE1	10:S3:49:THR:OG1	2.08	0.71
18:2M:62:ALA:HA	18:2M:65:LEU:HB3	1.72	0.71
8:S1:193:ARG:NH2	9:S2:290:ASP:OD1	2.23	0.71
15:V1:303:LEU:HA	15:V1:317:GLU:HA	1.72	0.71
6:A9:94:ARG:NH2	35:A9:401:NAP:O3X	2.23	0.71
16:V2:32:LEU:HD22	16:V2:86:VAL:HG21	1.73	0.71
18:2M:232:ALA:O	18:2M:235:PHE:N	2.23	0.71
6:A9:68:PHE:HD1	6:A9:118:ASN:HD21	1.38	0.71
5:A7:127:GLY:O	9:S2:277:GLN:NE2	2.23	0.70
21:6M:126:VAL:O	25:AM:90:GLN:NE2	2.25	0.70
19:3M:75:THR:HG23	21:6M:52:ILE:HD12	1.74	0.70
8:S1:114:ILE:HD11	11:S4:129:LYS:HB3	1.74	0.70
8:S1:638:THR:HG23	8:S1:691:VAL:HA	1.74	0.70
23:A3:30:LEU:O	23:A3:34:VAL:HB	1.91	0.70
6:A9:141:ARG:NH1	35:A9:401:NAP:O1A	2.24	0.70
15:V1:147:GLU:HG2	15:V1:155:ASP:HB2	1.72	0.70
18:2M:287:SER:HB3	18:2M:321:THR:HG22	1.74	0.70
31:X1:17:ASP:OD2	31:X1:24:LYS:NZ	2.25	0.70
32:G1:166:GLY:HA3	33:G2:168:LEU:HD22	1.73	0.69
8:S1:340:LEU:O	8:S1:344:ARG:NH2	2.23	0.69
8:S1:345:LEU:HD22	8:S1:608:GLY:H	1.56	0.69
20:4L:40:LEU:HD11	21:6M:37:THR:HG21	1.74	0.69
33:G2:144:PHE:O	33:G2:162:MET:HA	1.92	0.69
9:S2:109:THR:OG1	9:S2:145:TYR:OH	2.08	0.69
8:S1:173:ILE:O	14:S8:150:ARG:NH1	2.26	0.69
17:1M:176:GLN:HG2	25:AM:67:GLY:HA3	1.74	0.69
32:G1:122:ILE:HG22	32:G1:126:VAL:HG11	1.75	0.69
16:V2:224:ARG:HA	16:V2:230:GLU:HA	1.73	0.69
8:S1:589:ASP:O	8:S1:592:LEU:HA	1.92	0.68
13:S7:148:ILE:HD11	13:S7:197:LEU:HD22	1.75	0.68
8:S1:589:ASP:O	8:S1:592:LEU:N	2.26	0.68
17:1M:325:PRO:OXT	19:3M:85:ASN:ND2	2.25	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A9:222:ARG:NH2	35:A9:401:NAP:O2N	2.26	0.68
8:S1:224:ARG:HH11	8:S1:270:PRO:HD3	1.57	0.68
8:S1:130:LYS:HB3	8:S1:131:PRO:HD3	1.75	0.68
8:S1:399:ASP:HB3	8:S1:669:LEU:HD11	1.75	0.68
16:V2:29:ASN:O	16:V2:115:ARG:NH2	2.26	0.68
8:S1:219:CYS:HA	37:S1:802:SF4:S4	2.34	0.68
6:A9:210:ILE:HB	6:A9:273:THR:HG23	1.76	0.68
9:S2:304:LEU:HD13	25:AM:6:ILE:HD11	1.75	0.68
6:A9:347:VAL:HG12	6:A9:349:GLU:H	1.59	0.68
4:A6:128:SER:O	8:S1:652:ARG:NH1	2.27	0.68
8:S1:589:ASP:O	8:S1:592:LEU:CA	2.41	0.68
6:A9:219:THR:OG1	6:A9:220:GLU:OE1	2.11	0.67
17:1M:201:ALA:HB3	17:1M:202:PRO:HD3	1.76	0.67
9:S2:59:THR:HG22	9:S2:60:TYR:H	1.58	0.67
9:S2:298:SER:OG	9:S2:301:ARG:NH2	2.27	0.67
9:S2:389:SER:HA	9:S2:392:VAL:HG22	1.77	0.67
8:S1:119:ARG:HH21	15:V1:452:ILE:HG12	1.59	0.67
8:S1:423:ARG:NH1	8:S1:565:ASP:OD2	2.27	0.67
32:G1:154:GLY:O	32:G1:172:ASN:N	2.27	0.67
8:S1:105:ARG:NH2	11:S4:57:GLN:O	2.28	0.67
15:V1:140:TYR:O	15:V1:268:THR:HA	1.95	0.67
7:AL:131:ILE:HG22	7:AL:132:TYR:H	1.58	0.67
8:S1:288:LEU:HD13	8:S1:307:ASP:HB3	1.76	0.67
8:S1:498:GLU:HG3	8:S1:499:GLY:H	1.58	0.67
33:G2:207:TYR:OH	34:L2:103:ARG:NH2	2.27	0.67
12:S6:69:THR:HG22	12:S6:71:PRO:HD2	1.77	0.67
8:S1:303:ASN:OD1	8:S1:321:ASN:ND2	2.23	0.67
33:G2:67:VAL:HG12	33:G2:85:LEU:HB2	1.77	0.67
14:S8:110:GLU:OE2	14:S8:182:ASN:ND2	2.29	0.66
17:1M:176:GLN:HG3	17:1M:177:ILE:HG22	1.76	0.66
8:S1:374:HIS:NE2	8:S1:665:ALA:O	2.26	0.66
18:2M:44:GLY:HA2	18:2M:115:ILE:HG21	1.78	0.66
33:G2:141:ASP:OD1	33:G2:141:ASP:N	2.28	0.66
17:1M:274:ILE:HD11	22:A1:12:LEU:HB3	1.78	0.66
6:A9:61:SER:OG	6:A9:86:GLY:O	2.13	0.66
8:S1:730:THR:HA	8:S1:733:SER:HB3	1.77	0.66
17:1M:98:MET:HG3	22:A1:27:TYR:HB2	1.78	0.65
17:1M:102:ASP:OD1	22:A1:41:GLY:N	2.30	0.65
8:S1:111:ARG:HE	8:S1:326:GLU:HB3	1.61	0.65
17:1M:95:ASP:OD1	17:1M:96:TYR:N	2.28	0.65
19:3M:76:PHE:O	21:6M:145:TYR:OH	2.15	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:6M:112:LEU:O	21:6M:115:THR:OG1	2.13	0.65
33:G2:46:MET:HG3	33:G2:68:ILE:HG23	1.79	0.65
7:AL:128:GLU:O	7:AL:131:ILE:O	2.14	0.65
8:S1:177:GLY:O	8:S1:284:ARG:NH1	2.30	0.65
8:S1:376:VAL:HB	8:S1:377:LYS:HD3	1.77	0.65
17:1M:205:LEU:HD22	17:1M:291:ARG:HA	1.79	0.65
18:2M:129:ILE:HD11	18:2M:261:SER:HA	1.79	0.65
12:S6:65:CYS:HB3	12:S6:90:CYS:SG	2.35	0.65
15:V1:272:ASN:ND2	40:V1:501:FMN:O2	2.30	0.65
6:A9:198:GLU:HG3	6:A9:210:ILE:HG21	1.79	0.64
34:L2:175:GLU:OE1	34:L2:191:ARG:NH2	2.26	0.64
9:S2:139:GLU:OE2	13:S7:95:HIS:ND1	2.31	0.64
13:S7:111:ARG:HD3	13:S7:112:PRO:HD2	1.78	0.64
18:2M:191:GLY:O	30:S5:2:ALA:N	2.31	0.64
8:S1:659:ARG:HH22	8:S1:668:ARG:HH21	1.45	0.64
10:S3:23:GLU:OE1	10:S3:30:ARG:NH1	2.30	0.64
34:L2:157:GLU:HB2	34:L2:175:GLU:HA	1.80	0.64
16:V2:157:ASP:O	16:V2:159:LEU:N	2.31	0.64
2:A2:84:LYS:NZ	2:A2:87:GLU:OE1	2.28	0.64
10:S3:21:LYS:HB3	10:S3:32:ASP:HB3	1.80	0.64
15:V1:237:GLU:HB3	15:V1:270:VAL:HG11	1.79	0.64
21:6M:116:GLN:O	21:6M:120:THR:OG1	2.14	0.64
8:S1:722:ASN:HD22	8:S1:725:MET:HB2	1.62	0.64
6:A9:168:HIS:O	6:A9:168:HIS:ND1	2.32	0.63
18:2M:200:LYS:NZ	30:S5:22:SER:OG	2.31	0.63
18:2M:349:PHE:HA	18:2M:352:VAL:HG12	1.80	0.63
33:G2:124:ASP:H	33:G2:141:ASP:HB3	1.63	0.63
8:S1:339:GLY:HA3	8:S1:733:SER:HB2	1.79	0.63
18:2M:291:MET:HB3	18:2M:421:THR:HG21	1.80	0.63
8:S1:524:ARG:HH12	8:S1:714:THR:HG23	1.61	0.63
8:S1:682:ARG:HB2	8:S1:689:VAL:HG11	1.80	0.63
9:S2:71:ASP:OD1	9:S2:335:LYS:NZ	2.32	0.63
9:S2:38:GLU:O	9:S2:371:LYS:NZ	2.28	0.63
17:1M:182:PRO:HB3	25:AM:60:GLY:HA3	1.80	0.63
30:S5:27:ARG:NH2	30:S5:28:CYS:SG	2.72	0.63
3:A5:14:VAL:HG23	3:A5:15:LYS:H	1.63	0.63
4:A6:120:SER:O	4:A6:122:PHE:N	2.32	0.63
5:A7:61:PRO:HA	5:A7:64:VAL:HG12	1.80	0.63
9:S2:217:TRP:HA	10:S3:107:SER:HB2	1.79	0.63
32:G1:11:VAL:HG13	33:G2:29:LEU:HD21	1.81	0.63
8:S1:556:LEU:O	8:S1:557:HIS:ND1	2.32	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:G2:101:GLN:HB2	33:G2:129:GLY:HA2	1.80	0.63
16:V2:74:ASP:OD1	16:V2:78:GLN:NE2	2.32	0.62
6:A9:346:ILE:HG13	6:A9:347:VAL:H	1.64	0.62
14:S8:125:ALA:O	14:S8:150:ARG:NH2	2.32	0.62
21:6M:134:TRP:HD1	30:S5:9:GLY:HA3	1.65	0.62
28:C2:25:LYS:NZ	34:L2:92:ASP:OD2	2.30	0.62
6:A9:331:GLU:HG2	6:A9:332:ILE:H	1.64	0.62
10:S3:163:ARG:HG2	10:S3:164:VAL:HG12	1.80	0.62
3:A5:54:ARG:NE	3:A5:58:GLU:OE2	2.27	0.62
18:2M:355:LEU:HD21	18:2M:376:LEU:HD21	1.82	0.62
31:X1:83:GLY:HA3	31:X1:89:PHE:HD2	1.64	0.62
6:A9:173:ARG:NH2	6:A9:262:VAL:O	2.30	0.62
7:AL:40:GLN:NE2	17:1M:41:ASP:OD2	2.32	0.62
20:4L:3:PRO:HG3	25:AM:138:LEU:HD23	1.80	0.62
8:S1:555:LEU:HB2	8:S1:634:THR:HG22	1.81	0.62
18:2M:201:ILE:O	30:S5:38:ARG:NH1	2.33	0.62
18:2M:305:LYS:NZ	18:2M:360:VAL:O	2.33	0.62
33:G2:72:GLN:HB3	33:G2:93:ARG:HG3	1.80	0.62
16:V2:128:THR:O	16:V2:132:MET:N	2.32	0.61
32:G1:83:CYS:HA	32:G1:104:SER:O	2.00	0.61
8:S1:339:GLY:HA2	8:S1:342:ARG:HB3	1.81	0.61
15:V1:75:GLY:HA3	15:V1:161:HIS:HD2	1.65	0.61
33:G2:96:SER:N	33:G2:124:ASP:OD1	2.31	0.61
9:S2:103:VAL:HG21	9:S2:241:VAL:HG12	1.82	0.61
8:S1:662:SER:OG	8:S1:667:VAL:O	2.18	0.61
7:AL:128:GLU:O	7:AL:131:ILE:C	2.38	0.61
8:S1:381:ILE:HG23	8:S1:581:PHE:HD2	1.65	0.61
8:S1:609:ASP:OD1	8:S1:610:LYS:N	2.34	0.61
10:S3:162:LYS:HG3	10:S3:163:ARG:H	1.65	0.61
17:1M:93:PRO:HA	17:1M:99:VAL:HG12	1.81	0.61
6:A9:236:PHE:HB2	6:A9:300:ARG:HB2	1.82	0.61
8:S1:381:ILE:HD12	8:S1:406:SER:HB2	1.81	0.61
15:V1:413:CYS:O	15:V1:417:THR:OG1	2.12	0.61
6:A9:217:ILE:HD11	6:A9:364:LEU:HD22	1.83	0.61
6:A9:296:ARG:HH22	6:A9:373:ILE:HG23	1.65	0.61
8:S1:222:CYS:SG	8:S1:224:ARG:HB2	2.41	0.61
5:A7:121:ILE:HG21	9:S2:273:ARG:HH21	1.65	0.61
10:S3:158:ASP:OD1	13:S7:135:ARG:NE	2.34	0.61
15:V1:140:TYR:HB2	15:V1:268:THR:HG22	1.83	0.61
15:V1:141:LEU:O	15:V1:182:ALA:HA	2.00	0.61
15:V1:444:THR:HG21	15:V1:464:GLN:HB2	1.83	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:1M:324:LEU:HD12	17:1M:325:PRO:HD2	1.83	0.61
10:S3:30:ARG:NE	10:S3:89:GLN:OE1	2.32	0.60
14:S8:160:THR:OG1	14:S8:161:LYS:N	2.34	0.60
15:V1:430:GLY:O	15:V1:481:ASN:ND2	2.34	0.60
33:G2:128:VAL:HA	33:G2:145:VAL:O	2.01	0.60
3:A5:121:GLU:OE2	5:A7:82:ARG:NH1	2.32	0.60
15:V1:263:LEU:HB3	15:V1:268:THR:HG21	1.84	0.60
15:V1:311:ASN:ND2	15:V1:334:GLY:O	2.34	0.60
18:2M:359:ARG:O	18:2M:359:ARG:NH1	2.35	0.60
8:S1:720:ILE:HD11	8:S1:726:THR:HG21	1.83	0.60
8:S1:730:THR:HB	8:S1:736:MET:HG3	1.83	0.60
21:6M:134:TRP:CD1	30:S5:9:GLY:HA3	2.37	0.60
32:G1:148:GLY:O	32:G1:166:GLY:HA2	2.01	0.60
8:S1:82:TYR:OH	8:S1:99:ALA:O	2.18	0.60
8:S1:346:ASN:HB2	8:S1:649:GLY:HA3	1.84	0.60
31:X1:9:THR:HG22	31:X1:10:LYS:H	1.66	0.60
16:V2:144:LEU:HD11	16:V2:151:ARG:H	1.66	0.60
18:2M:113:GLU:HA	18:2M:116:VAL:HG12	1.83	0.60
18:2M:288:ILE:HG22	18:2M:417:VAL:HG11	1.83	0.60
5:A7:74:GLN:HA	5:A7:77:ASN:HD22	1.67	0.60
8:S1:241:LEU:HB2	16:V2:108:THR:HG21	1.83	0.60
9:S2:74:SER:HB3	9:S2:113:ASN:HD22	1.66	0.60
30:S5:8:THR:O	30:S5:10:ASN:ND2	2.35	0.60
33:G2:218:ASN:HD21	34:L2:59:GLN:HE22	1.49	0.60
9:S2:139:GLU:OE1	9:S2:152:ARG:NH2	2.30	0.60
15:V1:59:HIS:N	15:V1:294:GLY:O	2.35	0.60
15:V1:455:LEU:HB3	37:V1:500:SF4:S4	2.42	0.60
31:X1:84:ARG:NH2	31:X1:94:GLU:OE2	2.34	0.60
18:2M:105:GLU:OE2	33:G2:237:ARG:NH1	2.29	0.59
32:G1:142:GLU:O	32:G1:160:HIS:CA	2.50	0.59
6:A9:108:ASP:OD1	6:A9:109:LEU:N	2.34	0.59
8:S1:119:ARG:NH1	8:S1:133:ALA:HB2	2.17	0.59
24:A8:67:LEU:HD21	24:A8:99:PHE:HZ	1.67	0.59
15:V1:184:ILE:HD11	15:V1:225:ILE:HG22	1.84	0.59
24:A8:73:LYS:NZ	24:A8:77:ASP:OD2	2.30	0.59
33:G2:163:VAL:HG12	33:G2:181:TRP:HB2	1.84	0.59
2:A2:39:LEU:O	2:A2:43:ASN:N	2.35	0.59
34:L2:170:GLU:HB2	34:L2:188:PRO:HB3	1.84	0.59
9:S2:162:GLY:HA3	9:S2:288:LYS:HA	1.84	0.59
13:S7:57:SER:O	13:S7:60:ALA:N	2.35	0.59
18:2M:6:LEU:HA	18:2M:9:TYR:CD1	2.38	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:35:ASN:HA	2:A2:38:GLU:HG2	1.85	0.59
5:A7:21:TRP:O	5:A7:23:ILE:N	2.36	0.59
25:AM:111:VAL:HG21	30:S5:61:GLU:HG2	1.83	0.59
7:AL:135:LYS:HB2	14:S8:197:LYS:NZ	2.18	0.59
10:S3:112:GLU:OE2	10:S3:123:SER:OG	2.21	0.59
24:A8:55:ASP:OD1	24:A8:58:ARG:NH2	2.36	0.59
18:2M:443:THR:OG1	34:L2:141:ARG:NH2	2.36	0.58
33:G2:37:GLU:OE2	33:G2:37:GLU:N	2.35	0.58
6:A9:60:VAL:HG12	6:A9:62:GLY:H	1.68	0.58
9:S2:105:PHE:CZ	9:S2:148:VAL:HG21	2.37	0.58
17:1M:26:ALA:HB2	22:A1:11:PRO:HB2	1.85	0.58
6:A9:141:ARG:HD3	35:A9:401:NAP:H8A	1.86	0.58
18:2M:75:LEU:HD23	18:2M:76:PHE:HB3	1.84	0.58
18:2M:274:SER:OG	18:2M:275:TYR:N	2.37	0.58
6:A9:51:ARG:HA	6:A9:61:SER:HA	1.85	0.58
6:A9:73:PHE:CZ	6:A9:252:VAL:HG21	2.38	0.58
9:S2:190:GLU:OE1	9:S2:269:ARG:NH2	2.36	0.58
8:S1:382:VAL:HG12	8:S1:408:ASP:HB2	1.85	0.58
12:S6:68:ASP:O	12:S6:69:THR:OG1	2.21	0.58
15:V1:252:ARG:NH1	15:V1:262:GLY:O	2.32	0.58
15:V1:143:VAL:HB	15:V1:184:ILE:HG22	1.84	0.58
9:S2:27:ARG:HB3	9:S2:43:HIS:HB2	1.85	0.58
18:2M:6:LEU:HA	18:2M:9:TYR:HD1	1.68	0.58
32:G1:157:VAL:HG13	32:G1:175:ILE:HB	1.85	0.58
6:A9:160:ASN:O	6:A9:164:ILE:HG12	2.03	0.58
15:V1:130:MET:HG3	15:V1:177:MET:HE3	1.84	0.58
24:A8:8:SER:OG	24:A8:9:GLY:N	2.37	0.58
5:A7:64:VAL:HG21	25:AM:3:GLU:HB3	1.86	0.58
33:G2:190:ARG:NH2	33:G2:196:GLU:OE1	2.35	0.58
16:V2:150:LYS:H	16:V2:153:GLU:HB3	1.68	0.57
6:A9:141:ARG:HH21	6:A9:143:TYR:HE1	1.52	0.57
15:V1:229:ALA:HB1	16:V2:110:TYR:CG	2.39	0.57
15:V1:238:THR:HA	15:V1:241:LEU:HD12	1.86	0.57
34:L2:95:SER:HG	34:L2:97:TRP:HE1	1.52	0.57
8:S1:366:LEU:HB3	8:S1:664:VAL:HG11	1.86	0.57
9:S2:154:HIS:NE2	13:S7:88:CYS:SG	2.74	0.57
9:S2:230:CYS:HB3	9:S2:251:VAL:HG21	1.86	0.57
14:S8:89:GLU:O	14:S8:91:LYS:NZ	2.31	0.57
17:1M:257:LEU:HD22	17:1M:259:ILE:HG22	1.85	0.57
25:AM:8:ASN:HD22	25:AM:19:PRO:HA	1.69	0.57
2:A2:4:ARG:NH1	2:A2:38:GLU:OE2	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A5:50:ASP:HA	3:A5:54:ARG:HD3	1.87	0.57
8:S1:312:GLU:OE2	8:S1:341:LYS:NZ	2.38	0.57
9:S2:203:LEU:HG	9:S2:257:CYS:HB3	1.86	0.57
14:S8:192:GLU:N	14:S8:192:GLU:OE1	2.38	0.57
18:2M:317:GLY:O	18:2M:321:THR:HG23	2.04	0.57
21:6M:47:ASP:OD1	21:6M:48:PHE:N	2.38	0.57
24:A8:21:SER:O	24:A8:25:ILE:N	2.33	0.57
32:G1:92:ILE:HD13	32:G1:120:THR:HB	1.86	0.57
33:G2:101:GLN:HG2	33:G2:207:TYR:CZ	2.39	0.57
33:G2:196:GLU:HA	33:G2:199:PHE:HD2	1.68	0.57
6:A9:58:SER:OG	10:S3:170:GLU:O	2.22	0.57
18:2M:162:THR:HG1	20:4L:83:THR:HG1	1.51	0.57
22:A1:53:ASP:OD1	24:A8:15:SER:N	2.38	0.57
2:A2:15:ARG:NH1	2:A2:69:GLU:OE2	2.37	0.57
35:A9:401:NAP:O2X	35:A9:401:NAP:O3B	2.22	0.57
7:AL:97:HIS:CE1	14:S8:100:LYS:HD2	2.40	0.57
11:S4:131:TYR:HD2	15:V1:256:PRO:HG2	1.70	0.57
15:V1:185:TYR:HD2	15:V1:240:LEU:HG	1.69	0.57
18:2M:390:ILE:HG13	18:2M:391:PRO:HD2	1.87	0.57
7:AL:133:HIS:HB2	7:AL:140:ASN:HB2	1.86	0.57
9:S2:166:ASP:OD1	9:S2:167:LEU:N	2.37	0.57
20:4L:77:LEU:HD11	21:6M:68:VAL:HG11	1.87	0.57
32:G1:53:PRO:HD2	33:G2:35:PHE:HE2	1.69	0.57
32:G1:102:ASP:OD1	32:G1:102:ASP:N	2.36	0.57
5:A7:57:PRO:HG3	25:AM:21:LEU:HD22	1.85	0.57
6:A9:166:ARG:NH2	6:A9:204:GLU:O	2.38	0.57
8:S1:117:ASN:ND2	15:V1:409:GLN:O	2.36	0.57
8:S1:360:VAL:HG12	8:S1:361:ASN:H	1.70	0.57
8:S1:436:GLU:OE2	8:S1:458:ARG:NH1	2.38	0.57
10:S3:56:LEU:HD21	10:S3:59:ILE:HG13	1.87	0.57
33:G2:102:ASP:OD1	33:G2:102:ASP:N	2.33	0.57
6:A9:335:LEU:O	6:A9:339:GLN:HG2	2.05	0.56
15:V1:473:GLU:OE1	15:V1:477:ARG:NE	2.36	0.56
8:S1:187:MET:HG2	9:S2:314:GLU:HG2	1.87	0.56
18:2M:351:ILE:HG21	18:2M:380:PHE:HD1	1.69	0.56
36:G1:701:PC1:H251	36:G1:702:PC1:H391	1.86	0.56
34:L2:120:ARG:HB2	34:L2:148:TYR:CE1	2.40	0.56
15:V1:166:LEU:HD13	15:V1:273:VAL:HG23	1.87	0.56
18:2M:359:ARG:HG3	18:2M:365:ASP:HB2	1.86	0.56
18:2M:366:LEU:HB3	18:2M:436:MET:HE1	1.87	0.56
6:A9:354:PHE:O	6:A9:358:GLY:N	2.37	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:AL:67:THR:OG1	7:AL:68:GLN:N	2.39	0.56
18:2M:146:LEU:HD23	18:2M:149:TYR:HD2	1.70	0.56
24:A8:18:LEU:HB3	25:AM:85:ILE:HG12	1.87	0.56
6:A9:183:SER:O	6:A9:185:SER:N	2.33	0.56
8:S1:724:TYR:HB3	8:S1:736:MET:HB3	1.86	0.56
33:G2:145:VAL:HG22	33:G2:163:VAL:HG22	1.87	0.56
7:AL:43:ILE:O	7:AL:46:ILE:HG22	2.04	0.56
8:S1:125:VAL:HG12	8:S1:132:VAL:HG21	1.87	0.56
9:S2:15:PHE:HB3	9:S2:28:SER:HB2	1.87	0.56
17:1M:291:ARG:NE	17:1M:294:GLN:HE21	2.04	0.56
11:S4:69:PHE:O	11:S4:71:SER:N	2.37	0.56
32:G1:124:ASP:O	32:G1:141:ASP:HA	2.06	0.56
33:G2:112:ASN:HA	33:G2:117:VAL:HG22	1.87	0.56
32:G1:170:ARG:HH11	32:G1:185:PRO:HB3	1.71	0.56
12:S6:65:CYS:CB	12:S6:90:CYS:SG	2.94	0.56
10:S3:94:GLU:OE2	11:S4:111:LYS:NZ	2.33	0.56
20:4L:50:SER:HB2	20:4L:58:GLY:HA3	1.88	0.56
2:A2:8:SER:HA	2:A2:11:ILE:HG22	1.88	0.55
8:S1:305:ARG:NH1	8:S1:307:ASP:OD1	2.39	0.55
8:S1:619:LEU:HD22	8:S1:657:ILE:HD11	1.87	0.55
16:V2:152:ASN:N	16:V2:162:VAL:O	2.39	0.55
34:L2:140:GLU:HG3	34:L2:157:GLU:HA	1.87	0.55
6:A9:306:PHE:CD1	6:A9:307:PRO:HD3	2.41	0.55
19:3M:84:LEU:HD23	19:3M:87:ILE:HD11	1.89	0.55
21:6M:48:PHE:HB3	21:6M:136:ASN:HD21	1.71	0.55
32:G1:180:VAL:HG13	32:G1:192:LEU:HD21	1.87	0.55
33:G2:158:GLU:HG2	33:G2:159:LYS:HB2	1.87	0.55
10:S3:102:VAL:HB	10:S3:127:PRO:HG3	1.89	0.55
33:G2:158:GLU:OE1	33:G2:174:ARG:NH1	2.36	0.55
34:L2:181:GLU:O	34:L2:184:SER:OG	2.14	0.55
8:S1:326:GLU:OE2	8:S1:461:LYS:NZ	2.38	0.55
16:V2:35:PRO:HG2	16:V2:38:ASN:HB3	1.88	0.55
17:1M:146:SER:O	17:1M:149:VAL:HG12	2.07	0.55
33:G2:86:ARG:NH1	33:G2:88:ASP:OD2	2.40	0.55
8:S1:379:GLU:HA	8:S1:406:SER:OG	2.07	0.55
18:2M:11:GLU:OE2	18:2M:78:ARG:NH2	2.40	0.55
8:S1:218:ARG:HG3	8:S1:273:ALA:HB2	1.89	0.55
8:S1:318:PRO:HB3	8:S1:329:ILE:HG13	1.86	0.55
9:S2:152:ARG:HD2	13:S7:186:THR:HG23	1.89	0.55
10:S3:176:ARG:NH1	14:S8:130:GLU:OE2	2.40	0.55
15:V1:410:CYS:SG	15:V1:412:PRO:HD2	2.47	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:V1:448:GLU:OE2	15:V1:461:TRP:NE1	2.34	0.55
31:X1:32:LEU:HD21	31:X1:36:ARG:HH21	1.71	0.55
33:G2:60:PHE:HD2	33:G2:215:ALA:HB2	1.71	0.55
3:A5:121:GLU:OE1	10:S3:24:ARG:NH1	2.40	0.55
8:S1:430:THR:OG1	8:S1:552:ASN:OD1	2.23	0.55
8:S1:496:ILE:HG13	8:S1:504:PHE:HB2	1.89	0.55
14:S8:83:THR:HG23	17:1M:34:VAL:HG13	1.88	0.55
15:V1:179:ALA:O	15:V1:219:TYR:OH	2.17	0.55
15:V1:348:GLY:HA3	15:V1:352:VAL:HG21	1.89	0.55
16:V2:45:PHE:HA	16:V2:79:GLN:HE22	1.72	0.55
17:1M:188:VAL:O	17:1M:192:ILE:HG12	2.06	0.55
8:S1:339:GLY:HA3	8:S1:733:SER:CB	2.37	0.55
8:S1:604:GLN:NE2	8:S1:654:ASP:OD1	2.39	0.55
16:V2:181:ASP:O	16:V2:189:TYR:HA	2.07	0.55
32:G1:148:GLY:O	32:G1:166:GLY:CA	2.54	0.55
34:L2:91:TRP:HB2	34:L2:111:ILE:O	2.07	0.55
17:1M:162:VAL:HG23	25:AM:71:ARG:HH12	1.72	0.55
7:AL:74:TRP:HB3	14:S8:99:GLU:HB3	1.88	0.54
18:2M:360:VAL:O	18:2M:361:LYS:HG3	2.07	0.54
21:6M:155:PRO:HA	21:6M:158:ILE:HG12	1.89	0.54
33:G2:16:ARG:O	33:G2:20:GLN:HG2	2.07	0.54
3:A5:74:TRP:O	3:A5:77:ILE:HG12	2.08	0.54
3:A5:125:PRO:O	9:S2:91:ASN:ND2	2.40	0.54
7:AL:120:LYS:HE2	14:S8:206:ARG:HH22	1.72	0.54
25:AM:129:ARG:HD3	30:S5:17:PHE:CE1	2.42	0.54
34:L2:193:PRO:HG2	34:L2:196:GLU:HG3	1.89	0.54
6:A9:56:GLY:O	6:A9:59:SER:OG	2.25	0.54
6:A9:320:LEU:HA	6:A9:327:LEU:HD12	1.90	0.54
9:S2:223:MET:O	9:S2:227:PRO:HD2	2.08	0.54
15:V1:444:THR:HG23	15:V1:460:ALA:HB1	1.89	0.54
18:2M:39:LEU:HD12	18:2M:42:ASN:HB3	1.88	0.54
24:A8:43:ASP:OD1	24:A8:43:ASP:N	2.39	0.54
33:G2:112:ASN:H	33:G2:117:VAL:HG13	1.72	0.54
34:L2:174:VAL:HG12	34:L2:192:ILE:HB	1.88	0.54
17:1M:5:VAL:O	17:1M:9:ILE:HG12	2.06	0.54
17:1M:154:ILE:HG21	17:1M:190:PHE:HB2	1.88	0.54
18:2M:12:ILE:O	18:2M:16:ASN:ND2	2.38	0.54
7:AL:128:GLU:HB3	7:AL:133:HIS:NE2	2.22	0.54
8:S1:338:ASP:OD1	8:S1:733:SER:OG	2.26	0.54
15:V1:68:ARG:NH1	15:V1:317:GLU:OE2	2.28	0.54
15:V1:251:PRO:HG3	37:V1:500:SF4:S1	2.47	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:2M:226:SER:HB3	18:2M:266:ILE:HD11	1.88	0.54
18:2M:305:LYS:HZ2	18:2M:359:ARG:HH12	1.55	0.54
21:6M:117:ILE:O	21:6M:120:THR:HB	2.08	0.54
30:S5:2:ALA:N	30:S5:41:TYR:HH	2.06	0.54
3:A5:131:PRO:HD3	9:S2:84:LEU:HD13	1.88	0.54
18:2M:81:PHE:HA	18:2M:482:MET:HG3	1.89	0.54
36:G1:702:PC1:O14	33:G2:233:LYS:NZ	2.35	0.54
8:S1:377:LYS:HE2	8:S1:377:LYS:H	1.71	0.54
9:S2:303:LYS:HD2	12:S6:74:GLY:HA2	1.90	0.54
13:S7:81:PRO:HD3	13:S7:108:ILE:HG23	1.90	0.54
15:V1:307:SER:HB2	16:V2:172:VAL:HG13	1.89	0.54
18:2M:357:GLN:N	18:2M:448:GLU:OE2	2.41	0.54
19:3M:88:ASP:HB3	19:3M:89:PRO:HD2	1.89	0.54
2:A2:51:ARG:NH2	8:S1:565:ASP:O	2.41	0.54
5:A7:69:TYR:O	5:A7:73:ASP:HB3	2.07	0.54
12:S6:86:GLU:N	12:S6:86:GLU:OE1	2.41	0.54
17:1M:27:GLU:HG2	17:1M:281:ILE:HG23	1.88	0.54
8:S1:417:ASN:OD1	8:S1:418:THR:N	2.33	0.54
15:V1:309:HIS:ND1	15:V1:386:ASP:OD2	2.40	0.54
15:V1:332:CYS:SG	15:V1:333:GLY:N	2.81	0.54
18:2M:233:VAL:HA	18:2M:236:HIS:HB3	1.90	0.54
20:4L:24:ASN:HD21	20:4L:27:ASN:HB2	1.73	0.54
20:4L:51:VAL:HG11	21:6M:44:LEU:HD21	1.89	0.54
22:A1:4:ARG:NH2	36:A1:101:PC1:O14	2.40	0.54
25:AM:129:ARG:HD3	30:S5:17:PHE:HE1	1.72	0.54
32:G1:51:LYS:NZ	32:G1:88:ASP:O	2.31	0.54
32:G1:175:ILE:HD12	32:G1:181:TRP:CD1	2.43	0.54
9:S2:354:LYS:NZ	10:S3:114:GLU:OE1	2.41	0.54
15:V1:78:ASP:N	15:V1:78:ASP:OD1	2.38	0.53
27:C:17:UNK:O	27:C:21:UNK:N	2.38	0.53
8:S1:385:ALA:HB3	8:S1:411:GLY:HA2	1.91	0.53
16:V2:147:LEU:HB2	16:V2:149:VAL:HG22	1.90	0.53
32:G1:146:GLY:O	32:G1:165:ALA:HA	2.08	0.53
8:S1:372:ILE:HG13	8:S1:377:LYS:NZ	2.22	0.53
36:C2:101:PC1:H152	32:G1:28:ARG:HH22	1.73	0.53
10:S3:93:ASP:OD1	10:S3:94:GLU:N	2.40	0.53
15:V1:341:ASN:HA	15:V1:387:LYS:HE2	1.91	0.53
16:V2:177:ILE:HG23	16:V2:194:TYR:HB2	1.91	0.53
17:1M:277:LEU:O	17:1M:281:ILE:HG13	2.08	0.53
17:1M:302:VAL:HG13	23:A3:16:VAL:HG21	1.89	0.53
18:2M:22:LEU:HB2	18:2M:116:VAL:HG21	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:2M:39:LEU:HD12	18:2M:42:ASN:HD22	1.74	0.53
33:G2:92:ILE:HD13	33:G2:120:THR:HB	1.90	0.53
34:L2:100:CYS:SG	34:L2:101:VAL:N	2.82	0.53
6:A9:96:SER:OG	6:A9:97:GLU:N	2.42	0.53
6:A9:181:GLY:HA3	6:A9:191:LEU:HD22	1.90	0.53
8:S1:109:HIS:HD2	8:S1:111:ARG:H	1.56	0.53
20:4L:21:ILE:HG13	20:4L:31:MET:HG3	1.91	0.53
33:G2:162:MET:HG2	33:G2:180:VAL:HG12	1.91	0.53
6:A9:292:TYR:HA	6:A9:295:ILE:HG22	1.89	0.53
8:S1:423:ARG:HH12	8:S1:687:ASN:HD21	1.56	0.53
15:V1:309:HIS:CD2	16:V2:133:ILE:HD12	2.44	0.53
17:1M:9:ILE:O	17:1M:13:ILE:HG12	2.09	0.53
18:2M:174:PHE:HE2	20:4L:18:ILE:HG13	1.74	0.53
32:G1:156:TYR:OH	32:G1:158:GLU:OE2	2.25	0.53
36:AL:401:PC1:H2	13:S7:73:TRP:CG	2.44	0.53
9:S2:118:LEU:HD11	9:S2:261:TYR:CD1	2.44	0.53
9:S2:245:LEU:HD13	9:S2:274:ILE:HG23	1.89	0.53
6:A9:64:ILE:HG22	6:A9:133:ASN:HD22	1.74	0.53
15:V1:75:GLY:HA3	15:V1:161:HIS:CD2	2.44	0.53
22:A1:9:VAL:O	22:A1:13:GLY:N	2.36	0.53
7:AL:52:GLY:HA3	7:AL:92:TRP:CH2	2.43	0.53
8:S1:733:SER:OG	8:S1:734:LYS:N	2.39	0.53
15:V1:69:ILE:HD13	15:V1:278:VAL:HG23	1.91	0.53
15:V1:475:GLU:OE2	15:V1:479:ARG:NH2	2.42	0.53
17:1M:33:PHE:CD2	22:A1:8:ALA:HB2	2.44	0.53
32:G1:27:SER:OG	32:G1:32:ASN:O	2.26	0.53
32:G1:103:ASN:O	32:G1:131:SER:HA	2.09	0.53
12:S6:75:HIS:CE1	12:S6:92:TYR:HB2	2.43	0.52
18:2M:24:HIS:CD2	18:2M:28:PHE:HD2	2.27	0.52
8:S1:423:ARG:NH1	8:S1:687:ASN:HD21	2.07	0.52
8:S1:659:ARG:NH2	8:S1:668:ARG:HH21	2.06	0.52
10:S3:119:PHE:HE1	10:S3:143:LEU:HB3	1.75	0.52
12:S6:70:ASN:HB2	12:S6:71:PRO:HD3	1.92	0.52
24:A8:14:SER:O	24:A8:16:SER:N	2.42	0.52
8:S1:270:PRO:HD2	37:S1:802:SF4:S1	2.49	0.52
7:AL:24:LEU:HA	7:AL:27:GLU:HB2	1.90	0.52
8:S1:224:ARG:HH22	11:S4:57:GLN:HG3	1.73	0.52
8:S1:417:ASN:ND2	8:S1:525:LYS:O	2.42	0.52
8:S1:609:ASP:HB3	8:S1:732:ALA:HB2	1.90	0.52
10:S3:163:ARG:HG2	10:S3:164:VAL:N	2.24	0.52
18:2M:311:SER:HB3	18:2M:387:TYR:CE2	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:G2:51:LYS:HB3	33:G2:70:ASP:HB3	1.91	0.52
34:L2:96:VAL:HG11	34:L2:102:LEU:HD11	1.91	0.52
6:A9:181:GLY:O	6:A9:212:LYS:NZ	2.32	0.52
15:V1:63:LEU:O	15:V1:68:ARG:NH2	2.42	0.52
18:2M:256:ILE:HG12	18:2M:345:THR:HG23	1.91	0.52
33:G2:55:VAL:HA	33:G2:73:VAL:HG13	1.92	0.52
6:A9:101:ARG:O	6:A9:104:LYS:HB3	2.09	0.52
6:A9:187:PRO:HG2	6:A9:339:GLN:HB3	1.92	0.52
10:S3:4:GLN:HE22	10:S3:24:ARG:HE	1.57	0.52
17:1M:249:GLY:O	17:1M:252:LEU:HD12	2.10	0.52
32:G1:60:PHE:HB3	32:G1:211:ALA:HB1	1.91	0.52
8:S1:287:GLU:OE2	8:S1:309:ARG:NH1	2.33	0.52
10:S3:64:TYR:HD2	10:S3:67:ARG:HH21	1.56	0.52
10:S3:70:ARG:HH21	10:S3:144:ARG:HD3	1.74	0.52
15:V1:272:ASN:OD1	15:V1:273:VAL:N	2.43	0.52
17:1M:74:PHE:HE1	17:1M:128:SER:HA	1.74	0.52
3:A5:36:LEU:O	3:A5:40:THR:HG23	2.09	0.52
9:S2:36:VAL:HG13	9:S2:372:HIS:HA	1.92	0.52
24:A8:96:GLN:NE2	24:A8:100:GLU:OE2	2.43	0.52
3:A5:64:ARG:HA	3:A5:67:VAL:HG12	1.91	0.52
3:A5:71:GLU:OE2	3:A5:80:ARG:NE	2.38	0.52
6:A9:76:ARG:NH1	6:A9:220:GLU:OE2	2.36	0.52
20:4L:53:LEU:H	20:4L:53:LEU:HD23	1.75	0.52
32:G1:16:ARG:O	32:G1:20:GLN:HG2	2.10	0.52
32:G1:195:ASP:OD1	32:G1:196:GLU:N	2.42	0.52
3:A5:67:VAL:HG11	3:A5:81:LEU:HD13	1.92	0.52
3:A5:92:GLU:OE2	10:S3:81:ARG:NE	2.41	0.52
8:S1:633:ASN:ND2	8:S1:635:GLU:OE2	2.38	0.52
15:V1:140:TYR:HB2	15:V1:268:THR:CG2	2.39	0.52
15:V1:371:LYS:HA	15:V1:375:SER:O	2.10	0.52
31:X1:66:GLY:O	31:X1:70:VAL:HG23	2.10	0.52
32:G1:16:ARG:HG3	33:G2:26:GLY:HA3	1.91	0.52
33:G2:104:SER:OG	33:G2:105:LEU:N	2.43	0.52
7:AL:135:LYS:HB2	14:S8:197:LYS:HZ2	1.75	0.51
13:S7:183:CYS:SG	14:S8:163:ILE:HB	2.49	0.51
16:V2:38:ASN:O	16:V2:38:ASN:ND2	2.43	0.51
18:2M:3:ASN:ND2	31:X1:20:PRO:O	2.31	0.51
25:AM:109:ALA:HB2	25:AM:120:VAL:HG11	1.91	0.51
33:G2:223:ASP:OD1	33:G2:223:ASP:N	2.40	0.51
6:A9:153:VAL:O	6:A9:157:MET:HB2	2.10	0.51
6:A9:153:VAL:HG13	6:A9:154:HIS:H	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:C:30:UNK:O	27:C:34:UNK:N	2.43	0.51
34:L2:163:GLY:O	34:L2:166:SER:OG	2.28	0.51
2:A2:11:ILE:O	2:A2:13:GLU:N	2.44	0.51
3:A5:129:HIS:O	3:A5:129:HIS:ND1	2.42	0.51
6:A9:197:ALA:HA	6:A9:200:VAL:HG12	1.91	0.51
8:S1:687:ASN:OD1	8:S1:687:ASN:N	2.44	0.51
9:S2:183:ALA:HB2	9:S2:272:MET:HE1	1.93	0.51
15:V1:353:PRO:HD3	15:V1:461:TRP:HB3	1.91	0.51
33:G2:75:ARG:O	33:G2:97:GLY:N	2.44	0.51
8:S1:614:ARG:O	8:S1:614:ARG:NH1	2.38	0.51
18:2M:39:LEU:HD11	31:X1:57:ILE:HD11	1.91	0.51
22:A1:10:LEU:HB3	22:A1:11:PRO:HD3	1.92	0.51
24:A8:95:GLU:OE1	24:A8:95:GLU:N	2.40	0.51
34:L2:179:ILE:HD11	34:L2:217:ILE:HD11	1.91	0.51
14:S8:120:GLU:OE1	14:S8:121:GLU:N	2.44	0.51
15:V1:95:ASP:HA	15:V1:98:ILE:HG12	1.93	0.51
17:1M:128:SER:OG	17:1M:129:ASN:N	2.44	0.51
17:1M:164:SER:OG	17:1M:165:CYS:N	2.44	0.51
18:2M:70:LEU:HD12	18:2M:71:PHE:N	2.26	0.51
31:X1:54:LYS:HB3	31:X1:55:PRO:HD3	1.92	0.51
32:G1:96:SER:N	32:G1:124:ASP:HB3	2.26	0.51
7:AL:128:GLU:HB3	7:AL:133:HIS:CE1	2.45	0.51
9:S2:209:VAL:HG13	9:S2:227:PRO:HG3	1.93	0.51
15:V1:245:GLU:OE1	15:V1:252:ARG:NH2	2.44	0.51
18:2M:469:PHE:CD2	18:2M:470:PRO:HD3	2.44	0.51
20:4L:67:THR:HG22	21:6M:158:ILE:HD11	1.93	0.51
33:G2:193:SER:OG	33:G2:195:GLU:OE1	2.20	0.51
2:A2:69:GLU:OE2	8:S1:680:ARG:NH2	2.44	0.51
6:A9:233:LYS:HB3	6:A9:234:TYR:HD1	1.75	0.51
15:V1:306:VAL:HG11	15:V1:332:CYS:HB2	1.93	0.51
16:V2:234:THR:O	16:V2:235:THR:OG1	2.26	0.51
27:C:10:UNK:O	27:C:14:UNK:N	2.43	0.51
32:G1:162:MET:O	32:G1:180:VAL:HA	2.11	0.51
5:A7:35:ALA:HB2	9:S2:185:ARG:HH11	1.76	0.51
8:S1:173:ILE:HG22	14:S8:124:ILE:HD12	1.91	0.51
8:S1:531:PHE:O	8:S1:535:GLU:HG2	2.11	0.51
25:AM:8:ASN:ND2	25:AM:19:PRO:HA	2.25	0.51
34:L2:117:VAL:HG22	34:L2:145:ILE:HD12	1.92	0.51
7:AL:134:SER:O	7:AL:140:ASN:ND2	2.44	0.51
9:S2:141:LEU:HD21	9:S2:178:PHE:CE2	2.45	0.51
15:V1:111:SER:OG	15:V1:112:GLY:N	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:V1:298:ASN:ND2	15:V1:366:ASP:OD1	2.32	0.51
18:2M:149:TYR:CE1	18:2M:169:LEU:HA	2.45	0.51
25:AM:94:ASP:O	25:AM:98:VAL:HG23	2.11	0.51
12:S6:93:CYS:HB3	14:S8:116:TYR:CE2	2.46	0.50
16:V2:152:ASN:HA	16:V2:162:VAL:O	2.12	0.50
19:3M:68:ILE:O	19:3M:72:PRO:HD2	2.11	0.50
6:A9:79:VAL:HG23	6:A9:89:VAL:HG11	1.92	0.50
8:S1:219:CYS:SG	8:S1:249:ILE:HD12	2.52	0.50
4:A6:122:PHE:CE2	8:S1:659:ARG:HD2	2.46	0.50
8:S1:167:HIS:CG	8:S1:168:PRO:HD2	2.47	0.50
20:4L:60:SER:O	20:4L:64:LEU:HG	2.11	0.50
33:G2:64:SER:O	33:G2:82:GLY:N	2.45	0.50
5:A7:74:GLN:O	5:A7:77:ASN:HB2	2.12	0.50
9:S2:119:THR:HB	9:S2:131:SER:HA	1.92	0.50
16:V2:129:THR:OG1	16:V2:130:PRO:HD3	2.11	0.50
7:AL:92:TRP:CE2	7:AL:104:GLY:HA3	2.46	0.50
9:S2:112:LEU:HD21	9:S2:141:LEU:HB2	1.94	0.50
15:V1:236:GLU:HG3	15:V1:453:CYS:SG	2.51	0.50
17:1M:273:VAL:HG11	22:A1:19:LEU:HD12	1.93	0.50
23:A3:29:PHE:CE1	23:A3:33:VAL:HG11	2.47	0.50
32:G1:109:ALA:HB2	32:G1:135:GLN:HE21	1.76	0.50
8:S1:501:HIS:O	8:S1:503:PHE:N	2.44	0.50
15:V1:191:VAL:HG11	16:V2:191:TYR:HB3	1.93	0.50
18:2M:61:GLY:HA3	31:X1:79:GLN:NE2	2.27	0.50
18:2M:178:ILE:HG23	18:2M:221:PHE:HD1	1.76	0.50
18:2M:233:VAL:HG23	18:2M:234:PRO:HD3	1.93	0.50
19:3M:87:ILE:HD12	19:3M:91:GLY:HA3	1.94	0.50
5:A7:57:PRO:HB3	25:AM:7:ARG:NH2	2.27	0.50
5:A7:93:LYS:O	5:A7:97:GLU:HG3	2.12	0.50
9:S2:108:ILE:HG23	9:S2:141:LEU:HD22	1.93	0.50
12:S6:58:VAL:HG22	12:S6:59:GLU:H	1.75	0.50
15:V1:93:THR:OG1	15:V1:215:CYS:SG	2.69	0.50
16:V2:144:LEU:HD13	16:V2:149:VAL:HG23	1.93	0.50
7:AL:128:GLU:HA	7:AL:131:ILE:HB	1.94	0.50
13:S7:142:PRO:HB2	17:1M:61:LYS:HD2	1.93	0.50
23:A3:29:PHE:O	23:A3:33:VAL:HG12	2.12	0.50
36:G1:702:PC1:H272	36:G1:702:PC1:H341	1.93	0.50
33:G2:39:LEU:HG	33:G2:40:SER:H	1.76	0.50
8:S1:489:ASP:HB2	8:S1:492:THR:HG23	1.93	0.50
9:S2:65:PRO:O	9:S2:69:ARG:HG2	2.11	0.50
9:S2:123:MET:HA	9:S2:127:ALA:O	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:S3:135:ASP:HA	13:S7:129:LYS:HD2	1.94	0.50
15:V1:144:ASN:ND2	40:V1:501:FMN:N1	2.60	0.50
15:V1:368:ASP:HA	15:V1:371:LYS:HB3	1.93	0.50
18:2M:143:LEU:HD13	21:6M:158:ILE:HG22	1.94	0.50
32:G1:110:LYS:HD2	34:L2:227:LEU:HD23	1.94	0.50
8:S1:260:GLU:HG2	8:S1:261:LEU:HD12	1.93	0.49
8:S1:722:ASN:O	8:S1:724:TYR:N	2.45	0.49
18:2M:204:GLY:HA3	30:S5:32:LYS:HE2	1.94	0.49
22:A1:8:ALA:O	22:A1:11:PRO:HD2	2.12	0.49
31:X1:5:ILE:O	31:X1:18:ARG:NH1	2.45	0.49
33:G2:106:VAL:HG22	33:G2:134:LEU:HB2	1.94	0.49
7:AL:91:GLU:HG2	7:AL:92:TRP:H	1.77	0.49
9:S2:102:ARG:HD2	9:S2:158:ILE:HG23	1.94	0.49
15:V1:85:MET:HA	15:V1:87:ARG:HD2	1.95	0.49
17:1M:89:TRP:HZ2	17:1M:237:ILE:HG22	1.77	0.49
18:2M:233:VAL:O	18:2M:236:HIS:ND1	2.44	0.49
32:G1:80:TRP:O	32:G1:102:ASP:HA	2.11	0.49
32:G1:222:LEU:HD11	33:G2:41:ARG:HG2	1.94	0.49
3:A5:26:VAL:HG22	3:A5:28:ASN:H	1.78	0.49
12:S6:50:ILE:HD13	14:S8:120:GLU:HB2	1.94	0.49
18:2M:413:PHE:O	18:2M:416:PRO:HD2	2.11	0.49
27:C:11:UNK:O	27:C:15:UNK:N	2.45	0.49
7:AL:135:LYS:HB3	7:AL:144:ARG:HG3	1.94	0.49
7:AL:146:TRP:HE1	14:S8:197:LYS:HZ3	1.58	0.49
14:S8:172:CYS:SG	14:S8:176:ALA:N	2.80	0.49
31:X1:83:GLY:HA3	31:X1:89:PHE:CD2	2.46	0.49
32:G1:92:ILE:HD12	32:G1:106:VAL:HG12	1.94	0.49
34:L2:99:GLY:O	34:L2:120:ARG:HA	2.12	0.49
34:L2:236:LEU:HD12	34:L2:237:PRO:HD2	1.94	0.49
8:S1:538:ALA:HA	8:S1:543:VAL:HG12	1.94	0.49
10:S3:183:PRO:HG3	11:S4:61:LYS:HD3	1.95	0.49
21:6M:22:ASN:O	21:6M:25:HIS:N	2.43	0.49
6:A9:304:VAL:O	6:A9:308:ILE:HG12	2.12	0.49
7:AL:25:LYS:HA	7:AL:29:TYR:HB3	1.93	0.49
8:S1:377:LYS:HE3	8:S1:581:PHE:HB2	1.95	0.49
9:S2:356:ARG:HH12	9:S2:358:PRO:HA	1.77	0.49
13:S7:106:PHE:CD1	17:1M:42:VAL:HG21	2.47	0.49
18:2M:277:ALA:O	18:2M:281:GLN:HB2	2.12	0.49
31:X1:50:LEU:O	31:X1:53:ILE:HG12	2.13	0.49
32:G1:103:ASN:OD1	34:L2:120:ARG:NH1	2.45	0.49
33:G2:64:SER:O	33:G2:82:GLY:CA	2.61	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A5:120:ILE:HD12	5:A7:83:ARG:HG2	1.95	0.49
8:S1:272:GLY:N	37:S1:801:SF4:S1	2.73	0.49
17:1M:203:PHE:CD1	17:1M:295:LEU:HD13	2.47	0.49
17:1M:143:GLN:NE2	17:1M:199:ASN:OD1	2.46	0.49
17:1M:190:PHE:HZ	17:1M:242:LEU:HD11	1.78	0.49
18:2M:148:PHE:HE2	18:2M:254:LEU:HA	1.77	0.49
6:A9:209:THR:HA	6:A9:272:LYS:O	2.13	0.49
6:A9:274:TYR:CB	6:A9:352:LEU:HB2	2.43	0.49
7:AL:78:ALA:HA	7:AL:80:LYS:NZ	2.28	0.49
8:S1:62:ALA:O	11:S4:121:ARG:NH2	2.46	0.49
8:S1:372:ILE:HG13	8:S1:377:LYS:HZ1	1.78	0.49
31:X1:93:ASP:N	31:X1:93:ASP:OD1	2.31	0.49
33:G2:100:ILE:HA	33:G2:128:VAL:HG23	1.95	0.49
3:A5:30:ARG:HE	3:A5:72:GLU:HA	1.78	0.49
6:A9:57:ARG:O	6:A9:58:SER:OG	2.31	0.49
8:S1:422:PHE:O	8:S1:425:GLY:N	2.43	0.49
9:S2:88:ARG:NH2	10:S3:27:HIS:O	2.45	0.49
17:1M:32:ALA:HA	17:1M:37:ARG:HE	1.78	0.49
18:2M:356:ARG:N	18:2M:448:GLU:OE1	2.41	0.49
3:A5:30:ARG:NH2	3:A5:69:LYS:O	2.42	0.48
5:A7:35:ALA:HB2	9:S2:185:ARG:NH1	2.28	0.48
15:V1:185:TYR:CD2	15:V1:240:LEU:HG	2.46	0.48
33:G2:153:ASP:O	33:G2:155:VAL:HG12	2.13	0.48
2:A2:22:SER:OG	2:A2:23:SER:N	2.45	0.48
2:A2:36:TYR:OH	2:A2:40:LYS:NZ	2.32	0.48
6:A9:239:LEU:HD12	6:A9:303:LYS:HE2	1.94	0.48
8:S1:119:ARG:HH12	8:S1:133:ALA:HB2	1.78	0.48
8:S1:221:GLN:OE1	15:V1:414:ARG:NH1	2.47	0.48
9:S2:225:ARG:NH1	9:S2:267:GLU:OE1	2.25	0.48
15:V1:354:LEU:HD11	15:V1:395:ILE:HD11	1.94	0.48
16:V2:47:GLU:HB2	16:V2:48:PRO:HD3	1.95	0.48
17:1M:50:GLN:NE2	17:1M:54:ASP:OD2	2.46	0.48
33:G2:56:ASP:OD1	33:G2:58:ASP:N	2.31	0.48
3:A5:21:VAL:HG11	9:S2:255:GLY:H	1.78	0.48
6:A9:146:ARG:H	6:A9:320:LEU:HD11	1.77	0.48
7:AL:85:ALA:O	7:AL:86:SER:OG	2.28	0.48
8:S1:124:GLU:O	8:S1:124:GLU:HG3	2.13	0.48
8:S1:382:VAL:HA	8:S1:408:ASP:O	2.13	0.48
8:S1:633:ASN:O	8:S1:636:GLY:N	2.43	0.48
14:S8:123:CYS:HA	37:S8:302:SF4:S2	2.52	0.48
17:1M:265:GLY:HA2	17:1M:268:TRP:HD1	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:2M:65:LEU:HD11	18:2M:78:ARG:NH1	2.28	0.48
18:2M:96:THR:HG21	18:2M:253:PHE:CD1	2.48	0.48
33:G2:107:HIS:CD2	33:G2:108:VAL:H	2.31	0.48
33:G2:153:ASP:O	33:G2:155:VAL:N	2.39	0.48
3:A5:41:LEU:O	3:A5:45:GLN:HB2	2.13	0.48
8:S1:495:GLU:O	8:S1:498:GLU:C	2.51	0.48
3:A5:71:GLU:HB2	3:A5:77:ILE:HG22	1.94	0.48
6:A9:248:GLN:HG3	6:A9:347:VAL:HG23	1.94	0.48
7:AL:127:GLY:O	7:AL:131:ILE:HG13	2.13	0.48
8:S1:169:LEU:HD11	9:S2:305:SER:O	2.14	0.48
17:1M:162:VAL:CG2	25:AM:71:ARG:HH12	2.26	0.48
5:A7:58:ASN:ND2	25:AM:3:GLU:OE1	2.46	0.48
6:A9:334:ASN:O	6:A9:338:ILE:HG12	2.13	0.48
9:S2:132:LEU:HD12	17:1M:35:GLN:HB3	1.95	0.48
9:S2:291:ASP:N	9:S2:291:ASP:OD1	2.45	0.48
9:S2:366:LEU:N	9:S2:385:GLN:HE22	2.12	0.48
10:S3:71:PHE:HB2	10:S3:92:ALA:O	2.13	0.48
17:1M:78:PRO:HB2	17:1M:227:LEU:HD23	1.95	0.48
18:2M:113:GLU:OE2	19:3M:108:TYR:OH	2.18	0.48
32:G1:82:GLY:HA2	34:L2:120:ARG:HH22	1.78	0.48
34:L2:159:GLU:O	34:L2:177:GLN:HA	2.13	0.48
2:A2:32:VAL:O	2:A2:36:TYR:CB	2.62	0.48
6:A9:220:GLU:OE1	6:A9:220:GLU:N	2.47	0.48
9:S2:287:ILE:O	9:S2:288:LYS:HG2	2.14	0.48
9:S2:378:VAL:O	9:S2:382:ILE:HG12	2.13	0.48
10:S3:78:LEU:HA	10:S3:85:ARG:HA	1.94	0.48
13:S7:152:SER:OG	14:S8:160:THR:O	2.27	0.48
14:S8:126:CYS:N	37:S8:302:SF4:S4	2.85	0.48
21:6M:121:SER:O	25:AM:100:GLU:HG2	2.12	0.48
32:G1:138:THR:HG1	32:G1:156:TYR:HD1	1.59	0.48
33:G2:195:GLU:O	33:G2:198:THR:OG1	2.25	0.48
7:AL:54:ASP:HB3	7:AL:58:ASN:OD1	2.12	0.48
7:AL:85:ALA:HB1	14:S8:100:LYS:HZ1	1.78	0.48
7:AL:152:TRP:N	8:S1:344:ARG:O	2.46	0.48
9:S2:97:ARG:NH2	25:AM:23:ASP:HB3	2.29	0.48
9:S2:325:PRO:HB2	10:S3:27:HIS:HD2	1.78	0.48
13:S7:75:ARG:HB3	13:S7:201:ILE:HD11	1.94	0.48
13:S7:78:SER:O	13:S7:78:SER:OG	2.31	0.48
17:1M:248:LEU:HD12	17:1M:276:PHE:HE2	1.79	0.48
20:4L:44:SER:O	20:4L:48:VAL:HG23	2.14	0.48
32:G1:82:GLY:CA	34:L2:120:ARG:HH22	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:69:GLU:HG3	8:S1:680:ARG:HH12	1.79	0.48
9:S2:352:ARG:NH1	9:S2:354:LYS:HB2	2.29	0.48
15:V1:184:ILE:HG13	15:V1:225:ILE:HA	1.95	0.48
15:V1:341:ASN:O	15:V1:387:LYS:N	2.46	0.48
33:G2:120:THR:OG1	33:G2:136:GLY:HA2	2.14	0.48
33:G2:180:VAL:HG21	33:G2:190:ARG:HB2	1.96	0.48
2:A2:32:VAL:O	2:A2:36:TYR:HB3	2.14	0.48
2:A2:54:SER:N	8:S1:695:GLU:OE1	2.47	0.48
8:S1:394:MET:HE1	8:S1:559:ALA:HB1	1.94	0.48
13:S7:102:ASP:OD2	17:1M:37:ARG:HD2	2.13	0.48
13:S7:150:MET:HA	13:S7:180:VAL:HG12	1.96	0.48
15:V1:184:ILE:HD12	15:V1:197:LEU:HD21	1.96	0.48
15:V1:295:ARG:NH2	15:V1:366:ASP:OD1	2.46	0.48
17:1M:204:ASP:HB3	17:1M:289:ARG:HD3	1.95	0.48
32:G1:37:GLU:OE2	34:L2:56:TYR:OH	2.28	0.48
34:L2:136:ASP:N	34:L2:136:ASP:OD1	2.46	0.48
8:S1:220:ILE:N	37:S1:802:SF4:S3	2.87	0.47
8:S1:486:LEU:HD22	8:S1:501:HIS:HE1	1.79	0.47
18:2M:65:LEU:HD21	18:2M:78:ARG:HD3	1.95	0.47
22:A1:39:HIS:HE1	24:A8:88:GLU:OE2	1.97	0.47
32:G1:96:SER:H	32:G1:124:ASP:HB3	1.79	0.47
32:G1:103:ASN:O	32:G1:131:SER:N	2.47	0.47
34:L2:123:LEU:HD22	34:L2:151:LEU:HB2	1.95	0.47
4:A6:131:TYR:CD2	11:S4:73:GLN:HG3	2.49	0.47
6:A9:152:GLU:HA	6:A9:156:HIS:ND1	2.29	0.47
18:2M:1:MET:HG2	18:2M:2:PHE:H	1.78	0.47
18:2M:238:TRP:O	18:2M:242:ILE:HG12	2.15	0.47
2:A2:41:THR:OG1	8:S1:704:ARG:NH1	2.47	0.47
3:A5:42:LYS:HE3	3:A5:42:LYS:HB2	1.66	0.47
8:S1:603:TYR:HB3	8:S1:618:ILE:HD13	1.95	0.47
9:S2:330:ALA:HB1	9:S2:337:GLU:HG3	1.96	0.47
6:A9:269:SER:HB2	6:A9:272:LYS:HG3	1.97	0.47
7:AL:91:GLU:HG2	7:AL:92:TRP:N	2.29	0.47
8:S1:219:CYS:O	8:S1:221:GLN:NE2	2.46	0.47
8:S1:513:PRO:HD2	8:S1:543:VAL:HG23	1.95	0.47
8:S1:557:HIS:HB2	8:S1:560:GLN:HB2	1.96	0.47
10:S3:154:GLU:OE1	13:S7:164:TYR:HB2	2.14	0.47
12:S6:60:GLY:O	12:S6:99:GLN:NE2	2.47	0.47
16:V2:152:ASN:CA	16:V2:162:VAL:O	2.62	0.47
18:2M:463:SER:O	18:2M:467:LEU:HB2	2.14	0.47
32:G1:94:ILE:HG22	32:G1:98:THR:HG21	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:G1:102:ASP:OD1	32:G1:130:HIS:ND1	2.46	0.47
34:L2:70:PRO:HB3	34:L2:88:VAL:HG12	1.96	0.47
6:A9:315:PRO:HA	6:A9:318:ILE:HD12	1.96	0.47
8:S1:344:ARG:HH12	8:S1:623:ALA:HB2	1.79	0.47
9:S2:337:GLU:OE2	10:S3:85:ARG:NH2	2.48	0.47
17:1M:173:ALA:HB2	25:AM:71:ARG:NH1	2.30	0.47
36:C2:101:PC1:H122	36:C2:101:PC1:H2	1.96	0.47
6:A9:243:GLY:O	6:A9:285:HIS:HB2	2.14	0.47
10:S3:24:ARG:HA	10:S3:29:ASN:HD22	1.80	0.47
10:S3:33:THR:OG1	10:S3:34:LYS:N	2.48	0.47
10:S3:53:VAL:HA	10:S3:79:SER:OG	2.13	0.47
17:1M:23:LEU:HB2	22:A1:15:ILE:HD11	1.97	0.47
18:2M:469:PHE:O	18:2M:472:PRO:HD3	2.14	0.47
6:A9:262:VAL:HA	6:A9:265:ASP:OD2	2.14	0.47
9:S2:305:SER:OG	9:S2:306:MET:N	2.48	0.47
10:S3:123:SER:HB2	10:S3:128:ASP:HB2	1.96	0.47
13:S7:59:ALA:O	13:S7:63:VAL:HG23	2.13	0.47
15:V1:400:TYR:HB2	15:V1:421:TRP:CD1	2.49	0.47
16:V2:119:GLY:N	16:V2:161:SER:OG	2.25	0.47
18:2M:247:PRO:HG2	18:2M:250:VAL:CG2	2.45	0.47
18:2M:321:THR:HB	18:2M:414:LEU:HD13	1.95	0.47
34:L2:145:ILE:HG22	34:L2:149:SER:OG	2.15	0.47
6:A9:48:HIS:CD2	6:A9:49:LEU:HD23	2.49	0.47
8:S1:687:ASN:O	8:S1:690:ASN:N	2.47	0.47
9:S2:227:PRO:HB3	9:S2:255:GLY:HA3	1.97	0.47
18:2M:193:THR:HG21	20:4L:61:PHE:CZ	2.49	0.47
34:L2:157:GLU:HB3	34:L2:158:PRO:HD2	1.97	0.47
34:L2:162:ILE:HG23	34:L2:180:LEU:HD12	1.97	0.47
8:S1:528:ASP:OD1	8:S1:529:ALA:N	2.48	0.47
18:2M:233:VAL:CG2	18:2M:234:PRO:HD3	2.45	0.47
36:C2:101:PC1:H151	32:G1:24:ARG:HE	1.79	0.47
31:X1:52:GLY:O	31:X1:55:PRO:HD2	2.15	0.47
5:A7:67:ILE:O	5:A7:67:ILE:HG13	2.15	0.47
9:S2:148:VAL:O	14:S8:106:ARG:NH1	2.48	0.47
15:V1:454:ALA:HB3	40:V1:501:FMN:HM83	1.97	0.47
18:2M:174:PHE:CE2	20:4L:18:ILE:HG13	2.50	0.47
25:AM:95:GLU:O	25:AM:99:ARG:HG3	2.15	0.47
6:A9:117:TYR:CE1	6:A9:119:PRO:HD2	2.50	0.46
7:AL:74:TRP:CB	14:S8:99:GLU:HB3	2.45	0.46
8:S1:417:ASN:HB3	8:S1:527:GLN:NE2	2.29	0.46
18:2M:456:LEU:HD22	28:C2:20:SER:HB2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:S5:21:PHE:HE2	30:S5:38:ARG:HB2	1.80	0.46
33:G2:220:LYS:O	34:L2:57:ARG:NH1	2.49	0.46
6:A9:190:MET:HB3	6:A9:336:ASP:OD1	2.15	0.46
6:A9:240:PHE:HA	6:A9:305:PRO:HB3	1.97	0.46
6:A9:331:GLU:HG2	6:A9:332:ILE:N	2.29	0.46
8:S1:378:PRO:O	8:S1:406:SER:OG	2.33	0.46
21:6M:118:ASN:OD1	21:6M:119:THR:N	2.47	0.46
5:A7:105:PHE:HB3	5:A7:106:PRO:CD	2.45	0.46
6:A9:49:LEU:HD12	6:A9:62:GLY:HA3	1.96	0.46
8:S1:318:PRO:HD3	8:S1:329:ILE:HD12	1.97	0.46
13:S7:113:SER:OG	13:S7:116:GLN:NE2	2.48	0.46
15:V1:257:PHE:O	15:V1:259:ALA:N	2.43	0.46
17:1M:27:GLU:HG3	17:1M:200:ARG:HH12	1.80	0.46
18:2M:226:SER:CB	18:2M:266:ILE:HD11	2.45	0.46
19:3M:65:ILE:HD12	20:4L:74:ALA:HB1	1.96	0.46
23:A3:30:LEU:HD12	23:A3:30:LEU:HA	1.83	0.46
3:A5:99:LEU:HB2	10:S3:47:LEU:HB3	1.98	0.46
18:2M:154:SER:OG	18:2M:155:LYS:N	2.48	0.46
18:2M:358:THR:HB	18:2M:444:TRP:HE3	1.80	0.46
18:2M:469:PHE:CG	18:2M:470:PRO:HD3	2.50	0.46
24:A8:43:ASP:O	24:A8:45:ASN:N	2.38	0.46
8:S1:260:GLU:HA	8:S1:331:ASP:HB2	1.97	0.46
17:1M:175:LYS:HA	17:1M:252:LEU:HD13	1.98	0.46
18:2M:77:ARG:NH2	31:X1:8:SER:OG	2.49	0.46
18:2M:342:ALA:O	18:2M:346:ILE:HG23	2.16	0.46
32:G1:102:ASP:CG	33:G2:105:LEU:HD11	2.35	0.46
6:A9:369:VAL:HG22	6:A9:372:LEU:HD23	1.97	0.46
7:AL:135:LYS:HE3	12:S6:39:GLN:HB2	1.98	0.46
8:S1:591:ASN:O	8:S1:592:LEU:HG	2.16	0.46
14:S8:149:SER:OG	14:S8:151:ARG:NH1	2.49	0.46
24:A8:13:PRO:O	24:A8:17:VAL:HB	2.15	0.46
25:AM:122:GLU:OE1	30:S5:53:ARG:HD3	2.16	0.46
32:G1:159:LYS:HD2	32:G1:159:LYS:HA	1.73	0.46
33:G2:56:ASP:OD1	33:G2:57:LYS:N	2.49	0.46
2:A2:19:CYS:SG	2:A2:20:GLN:N	2.89	0.46
2:A2:53:CYS:SG	2:A2:54:SER:N	2.89	0.46
11:S4:136:LYS:HG2	11:S4:137:TRP:H	1.80	0.46
13:S7:150:MET:HA	13:S7:180:VAL:CG1	2.46	0.46
14:S8:94:ILE:O	14:S8:99:GLU:HG3	2.15	0.46
18:2M:135:ILE:HG21	20:4L:61:PHE:CD1	2.51	0.46
21:6M:35:CYS:O	21:6M:38:SER:OG	2.29	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:G2:140:GLU:HG2	33:G2:157:VAL:O	2.16	0.46
6:A9:209:THR:HG21	6:A9:262:VAL:HG21	1.97	0.46
6:A9:339:GLN:O	6:A9:342:THR:HG22	2.16	0.46
9:S2:240:ASP:O	9:S2:242:TYR:N	2.49	0.46
9:S2:394:ARG:NH2	10:S3:114:GLU:OE2	2.49	0.46
10:S3:21:LYS:HE3	10:S3:30:ARG:HH22	1.80	0.46
16:V2:177:ILE:HG22	16:V2:197:VAL:HG11	1.97	0.46
18:2M:24:HIS:CE1	18:2M:42:ASN:HD21	2.34	0.46
18:2M:135:ILE:HG13	20:4L:61:PHE:CD2	2.50	0.46
18:2M:136:ALA:HB2	21:6M:151:TRP:HE1	1.80	0.46
18:2M:302:THR:HA	18:2M:363:ILE:HG21	1.98	0.46
22:A1:48:ALA:HA	22:A1:51:ARG:HH11	1.81	0.46
24:A8:85:HIS:CD2	24:A8:91:LEU:HD23	2.51	0.46
29:P2:85:ARG:NH2	32:G1:33:TYR:OH	2.43	0.46
33:G2:221:SER:OG	33:G2:222:TYR:N	2.48	0.46
34:L2:192:ILE:HD12	34:L2:198:TRP:CE2	2.51	0.46
5:A7:105:PHE:HB3	5:A7:106:PRO:HD3	1.98	0.46
7:AL:31:ARG:NH1	36:AL:401:PC1:O14	2.35	0.46
8:S1:125:VAL:O	8:S1:128:SER:OG	2.20	0.46
8:S1:267:ASP:OD2	8:S1:334:ARG:NH2	2.40	0.46
10:S3:2:ASP:OD1	10:S3:2:ASP:N	2.39	0.46
10:S3:154:GLU:CD	13:S7:165:SER:H	2.19	0.46
18:2M:23:ILE:O	18:2M:27:VAL:HG12	2.15	0.46
34:L2:179:ILE:HD12	34:L2:209:LEU:HD11	1.98	0.46
3:A5:127:PRO:HD3	9:S2:91:ASN:HA	1.98	0.45
7:AL:28:GLY:HA2	7:AL:80:LYS:HG3	1.97	0.45
9:S2:135:PHE:O	9:S2:139:GLU:HG2	2.16	0.45
13:S7:103:LEU:HD22	13:S7:108:ILE:HD12	1.97	0.45
18:2M:89:LEU:HD23	18:2M:126:LEU:HD23	1.97	0.45
18:2M:305:LYS:NZ	18:2M:361:LYS:HA	2.30	0.45
32:G1:103:ASN:O	32:G1:131:SER:CA	2.64	0.45
3:A5:44:ILE:HD11	3:A5:100:ILE:HG12	1.98	0.45
6:A9:215:VAL:HA	35:A9:401:NAP:H4N	1.97	0.45
7:AL:69:TYR:O	7:AL:72:HIS:NE2	2.50	0.45
14:S8:187:THR:HG21	14:S8:192:GLU:HB2	1.98	0.45
18:2M:209:GLY:H	18:2M:212:SER:HB3	1.81	0.45
20:4L:53:LEU:HA	30:S5:13:ARG:NH1	2.32	0.45
20:4L:68:VAL:HG12	20:4L:72:GLU:OE1	2.16	0.45
24:A8:25:ILE:O	24:A8:27:ILE:N	2.50	0.45
32:G1:140:GLU:CB	32:G1:158:GLU:HG3	2.45	0.45
33:G2:189:LEU:HD12	33:G2:190:ARG:HG3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A2:72:ILE:HG13	2:A2:89:LEU:HD21	1.98	0.45
3:A5:43:GLU:HA	3:A5:46:LYS:HZ3	1.80	0.45
3:A5:57:VAL:HA	3:A5:60:PHE:CE2	2.52	0.45
6:A9:54:THR:OG1	10:S3:170:GLU:OE1	2.34	0.45
8:S1:360:VAL:HG12	8:S1:361:ASN:N	2.31	0.45
8:S1:472:TYR:OH	8:S1:475:PRO:O	2.21	0.45
11:S4:76:GLU:OE2	11:S4:76:GLU:N	2.50	0.45
15:V1:433:LYS:N	15:V1:436:GLU:OE2	2.49	0.45
17:1M:172:MET:O	17:1M:175:LYS:HB3	2.17	0.45
17:1M:250:GLY:O	17:1M:251:TRP:CG	2.69	0.45
24:A8:15:SER:HA	24:A8:18:LEU:HD12	1.98	0.45
6:A9:153:VAL:HG13	6:A9:154:HIS:N	2.31	0.45
8:S1:264:ASN:HD21	8:S1:329:ILE:H	1.64	0.45
9:S2:278:CYS:HB2	9:S2:279:PRO:HD3	1.97	0.45
15:V1:148:SER:HG	15:V1:232:TYR:HD1	1.64	0.45
15:V1:303:LEU:HD23	15:V1:303:LEU:H	1.81	0.45
18:2M:28:PHE:CE2	31:X1:60:PRO:HB3	2.52	0.45
21:6M:53:PHE:O	21:6M:57:TYR:HB2	2.16	0.45
31:X1:81:SER:HA	31:X1:84:ARG:NH1	2.32	0.45
34:L2:160:CYS:SG	34:L2:178:SER:OG	2.60	0.45
34:L2:238:TYR:O	34:L2:240:THR:N	2.49	0.45
2:A2:10:ASN:OD1	2:A2:10:ASN:N	2.49	0.45
18:2M:467:LEU:HD13	18:2M:470:PRO:HG2	1.97	0.45
32:G1:88:ASP:OD1	32:G1:88:ASP:N	2.49	0.45
15:V1:189:GLU:N	15:V1:189:GLU:OE1	2.50	0.45
18:2M:451:ASP:OD1	18:2M:452:ARG:N	2.50	0.45
32:G1:133:VAL:HG13	32:G1:150:THR:HA	1.98	0.45
6:A9:189:ARG:HA	6:A9:192:ARG:HD2	1.99	0.45
10:S3:98:ILE:O	10:S3:124:ILE:HG22	2.16	0.45
14:S8:158:ASP:HA	14:S8:194:LEU:HA	1.98	0.45
17:1M:236:MET:HB2	17:1M:236:MET:HE3	1.74	0.45
31:X1:48:GLY:O	31:X1:61:SER:OG	2.23	0.45
33:G2:100:ILE:HG13	33:G2:128:VAL:CG2	2.46	0.45
8:S1:512:ASN:H	8:S1:545:ARG:NH2	2.15	0.45
8:S1:734:LYS:O	8:S1:737:ALA:N	2.49	0.45
17:1M:43:VAL:HG23	17:1M:44:GLY:H	1.81	0.45
19:3M:4:PHE:CG	21:6M:42:LEU:HD21	2.52	0.45
20:4L:66:LEU:HD21	21:6M:56:VAL:HG11	1.98	0.45
25:AM:125:TYR:OH	30:S5:40:ASP:HB3	2.16	0.45
33:G2:73:VAL:HA	33:G2:94:VAL:HG22	1.99	0.45
8:S1:173:ILE:HB	14:S8:150:ARG:HD3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:S8:159:MET:N	14:S8:193:LEU:O	2.49	0.45
15:V1:137:ARG:NH1	15:V1:265:GLY:O	2.50	0.45
18:2M:21:LEU:HD23	18:2M:21:LEU:HA	1.75	0.45
18:2M:205:TYR:HD1	30:S5:38:ARG:HD3	1.82	0.45
18:2M:248:THR:HA	18:2M:251:THR:HG22	1.99	0.45
32:G1:57:LYS:HG2	32:G1:58:ASP:N	2.32	0.45
32:G1:186:ALA:O	32:G1:187:LYS:HE2	2.17	0.45
36:G1:701:PC1:H143	36:G1:702:PC1:H342	1.98	0.45
8:S1:175:ASP:OD1	8:S1:175:ASP:N	2.50	0.45
8:S1:257:LEU:HD12	8:S1:257:LEU:O	2.17	0.45
8:S1:496:ILE:HG23	8:S1:537:ILE:HD11	1.99	0.45
8:S1:730:THR:CA	8:S1:733:SER:HB3	2.45	0.45
13:S7:125:THR:OG1	37:S7:301:SF4:S4	2.75	0.45
14:S8:193:LEU:HD23	14:S8:193:LEU:HA	1.84	0.45
15:V1:155:ASP:N	15:V1:155:ASP:OD1	2.49	0.45
17:1M:56:LEU:O	17:1M:60:LEU:HG	2.16	0.45
18:2M:11:GLU:HG2	18:2M:127:PHE:CE1	2.52	0.45
19:3M:102:LEU:HD23	19:3M:102:LEU:HA	1.68	0.45
2:A2:63:ARG:HD2	8:S1:402:ASN:HD22	1.81	0.44
3:A5:131:PRO:HB3	9:S2:239:TYR:HB3	1.98	0.44
5:A7:44:LEU:H	5:A7:44:LEU:HD23	1.81	0.44
6:A9:188:SER:HB3	6:A9:339:GLN:HB2	2.00	0.44
6:A9:313:ALA:O	6:A9:335:LEU:HD21	2.17	0.44
15:V1:89:ASP:OD2	15:V1:165:LYS:HD3	2.17	0.44
17:1M:209:GLU:O	17:1M:213:VAL:N	2.42	0.44
18:2M:18:THR:HG21	18:2M:120:LEU:HD13	1.98	0.44
18:2M:253:PHE:O	18:2M:258:PRO:HD3	2.17	0.44
30:S5:41:TYR:HD2	30:S5:42:LEU:HD12	1.82	0.44
32:G1:142:GLU:O	32:G1:160:HIS:N	2.49	0.44
33:G2:98:THR:OG1	33:G2:126:VAL:O	2.19	0.44
33:G2:147:MET:O	33:G2:165:ALA:HA	2.16	0.44
2:A2:13:GLU:HB3	2:A2:63:ARG:HB3	1.99	0.44
10:S3:64:TYR:HD2	10:S3:67:ARG:NH2	2.16	0.44
15:V1:82:LYS:O	15:V1:86:LYS:N	2.51	0.44
16:V2:203:VAL:HA	16:V2:206:VAL:HG12	1.99	0.44
17:1M:5:VAL:HA	17:1M:8:GLU:OE1	2.17	0.44
17:1M:29:LYS:HD2	17:1M:39:GLY:HA3	2.00	0.44
21:6M:22:ASN:O	21:6M:24:VAL:N	2.50	0.44
34:L2:238:TYR:HD1	34:L2:238:TYR:HA	1.71	0.44
5:A7:78:ARG:HH12	9:S2:323:PRO:HG3	1.82	0.44
6:A9:131:LYS:HE2	6:A9:131:LYS:HB3	1.81	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A9:220:GLU:O	6:A9:220:GLU:HG2	2.17	0.44
8:S1:338:ASP:OD1	8:S1:339:GLY:N	2.50	0.44
8:S1:419:ASN:CG	8:S1:527:GLN:HE22	2.20	0.44
13:S7:78:SER:OG	17:1M:57:LYS:HD3	2.17	0.44
13:S7:146:TRP:HD1	13:S7:177:ASP:OD2	2.01	0.44
13:S7:186:THR:O	13:S7:189:ALA:N	2.51	0.44
21:6M:13:SER:O	21:6M:17:VAL:HG23	2.16	0.44
31:X1:9:THR:HG22	31:X1:10:LYS:N	2.31	0.44
32:G1:41:ARG:CZ	34:L2:239:SER:HB3	2.48	0.44
32:G1:71:VAL:HG23	32:G1:92:ILE:HB	1.99	0.44
33:G2:65:ALA:HA	33:G2:83:CYS:O	2.17	0.44
34:L2:179:ILE:O	34:L2:197:LEU:HA	2.18	0.44
5:A7:121:ILE:HG21	9:S2:273:ARG:NH2	2.32	0.44
6:A9:48:HIS:HD2	6:A9:49:LEU:HD23	1.82	0.44
9:S2:202:ARG:HH21	9:S2:376:ALA:HB1	1.82	0.44
12:S6:73:LEU:HD12	14:S8:122:ARG:HH22	1.82	0.44
13:S7:128:ASN:HD22	13:S7:165:SER:HA	1.83	0.44
18:2M:450:MET:HB3	18:2M:450:MET:HE2	1.82	0.44
21:6M:52:ILE:O	21:6M:56:VAL:HG12	2.17	0.44
21:6M:119:THR:O	21:6M:122:LEU:HB2	2.17	0.44
34:L2:240:THR:O	34:L2:240:THR:OG1	2.28	0.44
3:A5:21:VAL:HG21	9:S2:227:PRO:HB2	1.99	0.44
8:S1:180:CYS:SG	8:S1:182:LEU:HB3	2.57	0.44
9:S2:56:GLU:C	9:S2:58:LYS:H	2.19	0.44
13:S7:96:THR:HG22	13:S7:103:LEU:HG	1.98	0.44
15:V1:362:ASP:OD1	15:V1:362:ASP:N	2.51	0.44
16:V2:92:VAL:O	16:V2:95:ILE:HG22	2.17	0.44
18:2M:104:PHE:CE2	18:2M:115:ILE:HD11	2.53	0.44
18:2M:135:ILE:HG13	20:4L:61:PHE:CG	2.52	0.44
18:2M:163:GLU:HB2	18:2M:167:LYS:HZ1	1.82	0.44
18:2M:227:LEU:C	18:2M:232:ALA:HB2	2.37	0.44
18:2M:233:VAL:HG21	18:2M:290:SER:N	2.33	0.44
19:3M:80:TRP:NE1	19:3M:84:LEU:HD21	2.33	0.44
25:AM:119:LYS:O	25:AM:122:GLU:N	2.51	0.44
32:G1:29:LEU:HA	32:G1:29:LEU:HD12	1.77	0.44
7:AL:135:LYS:O	7:AL:144:ARG:N	2.43	0.44
8:S1:92:VAL:HG13	8:S1:145:ILE:HD13	1.99	0.44
8:S1:126:GLU:HB3	8:S1:144:LYS:HB2	2.00	0.44
14:S8:155:TYR:HB3	14:S8:198:GLU:HB2	1.97	0.44
15:V1:152:THR:HA	15:V1:305:CYS:SG	2.56	0.44
16:V2:67:SER:O	16:V2:69:VAL:N	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:V2:194:TYR:CE1	16:V2:217:HIS:HA	2.52	0.44
17:1M:258:PRO:HA	17:1M:261:LYS:HG3	2.00	0.44
17:1M:316:GLY:O	17:1M:320:THR:HG23	2.17	0.44
22:A1:36:ARG:HH11	24:A8:86:THR:HG22	1.82	0.44
32:G1:222:LEU:HD12	34:L2:54:TRP:CZ2	2.52	0.44
2:A2:15:ARG:HB3	2:A2:49:LEU:HB2	2.00	0.44
3:A5:64:ARG:HG2	3:A5:81:LEU:HD11	1.99	0.44
6:A9:239:LEU:HB3	6:A9:243:GLY:HA2	2.00	0.44
7:AL:97:HIS:NE2	14:S8:100:LYS:HD2	2.33	0.44
8:S1:209:GLY:HA2	8:S1:256:LEU:HD23	2.00	0.44
9:S2:181:GLN:O	9:S2:185:ARG:HG2	2.17	0.44
9:S2:388:VAL:O	9:S2:392:VAL:HG13	2.18	0.44
10:S3:154:GLU:OE2	13:S7:128:ASN:ND2	2.51	0.44
15:V1:134:SER:OG	15:V1:135:ASP:N	2.49	0.44
15:V1:434:LEU:O	15:V1:437:ILE:HG12	2.18	0.44
15:V1:486:LEU:O	15:V1:490:THR:HG23	2.18	0.44
18:2M:104:PHE:HD1	18:2M:109:PHE:CE1	2.36	0.44
18:2M:132:TYR:HE2	18:2M:196:ASP:OD1	2.00	0.44
20:4L:82:ILE:HD12	20:4L:82:ILE:HA	1.89	0.44
30:S5:38:ARG:HG3	30:S5:42:LEU:HD13	2.00	0.44
33:G2:232:ARG:HH11	34:L2:67:GLN:HA	1.83	0.44
3:A5:135:PRO:HA	3:A5:136:PRO:HD3	1.89	0.44
5:A7:67:ILE:HA	5:A7:72:ARG:HH22	1.83	0.44
6:A9:187:PRO:O	6:A9:188:SER:OG	2.31	0.44
9:S2:27:ARG:HB2	9:S2:46:LEU:HD11	1.98	0.44
9:S2:125:VAL:HG13	9:S2:202:ARG:HG2	1.99	0.44
16:V2:36:ASP:OD1	16:V2:36:ASP:N	2.51	0.44
19:3M:80:TRP:CD2	19:3M:95:MET:HG2	2.53	0.44
25:AM:15:VAL:HG13	25:AM:16:LYS:HD2	1.99	0.44
36:C2:101:PC1:H151	32:G1:24:ARG:NE	2.33	0.44
33:G2:217:GLU:O	33:G2:220:LYS:HG3	2.18	0.44
5:A7:19:LYS:O	5:A7:22:GLU:HB2	2.18	0.44
6:A9:236:PHE:CD2	6:A9:300:ARG:HB2	2.53	0.44
9:S2:90:LEU:HD13	9:S2:322:VAL:HG12	1.99	0.44
9:S2:373:HIS:HB3	9:S2:377:ASP:HB2	2.00	0.44
11:S4:131:TYR:CD2	15:V1:256:PRO:HG2	2.51	0.44
13:S7:176:VAL:HG11	13:S7:179:TYR:CE1	2.53	0.44
14:S8:80:LEU:HB3	17:1M:282:TRP:CZ2	2.52	0.44
17:1M:14:LEU:HB2	17:1M:15:PRO:HD3	2.00	0.44
18:2M:340:ILE:HD12	18:2M:394:ALA:HB1	1.99	0.44
25:AM:7:ARG:HG2	25:AM:19:PRO:HB3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:G1:23:ASP:OD2	34:L2:242:TYR:OH	2.17	0.44
32:G1:207:TYR:OH	33:G2:107:HIS:HE1	2.01	0.44
3:A5:125:PRO:HG2	9:S2:91:ASN:ND2	2.33	0.43
5:A7:57:PRO:HB3	25:AM:7:ARG:HH21	1.83	0.43
6:A9:176:GLN:O	6:A9:210:ILE:HA	2.18	0.43
6:A9:194:LYS:NZ	35:A9:401:NAP:O2D	2.45	0.43
6:A9:233:LYS:HB3	6:A9:234:TYR:CD1	2.53	0.43
8:S1:119:ARG:NH2	15:V1:452:ILE:HG12	2.29	0.43
8:S1:263:GLY:O	8:S1:266:ILE:HG12	2.18	0.43
31:X1:49:TYR:CE1	31:X1:58:ARG:HD2	2.53	0.43
32:G1:86:ARG:HH21	32:G1:107:HIS:CD2	2.36	0.43
8:S1:211:LEU:HD22	8:S1:335:PHE:CE2	2.52	0.43
9:S2:112:LEU:HD23	9:S2:112:LEU:HA	1.84	0.43
9:S2:199:TRP:CE2	9:S2:203:LEU:HD22	2.53	0.43
14:S8:209:THR:HG23	14:S8:210:GLU:H	1.83	0.43
15:V1:81:LEU:HD12	15:V1:83:GLY:H	1.83	0.43
18:2M:133:ASP:OD1	18:2M:134:SER:N	2.51	0.43
18:2M:435:ARG:HA	18:2M:438:PHE:HD2	1.83	0.43
32:G1:168:LEU:H	32:G1:168:LEU:HD23	1.83	0.43
36:G1:701:PC1:H132	36:G1:702:PC1:H352	1.99	0.43
15:V1:148:SER:OG	15:V1:232:TYR:HD1	2.00	0.43
15:V1:352:VAL:HG13	15:V1:376:GLY:H	1.83	0.43
17:1M:119:TYR:OH	21:6M:62:ALA:HB3	2.19	0.43
17:1M:134:PHE:CZ	17:1M:138:LEU:HD11	2.53	0.43
36:C2:101:PC1:H141	32:G1:24:ARG:NH2	2.33	0.43
34:L2:118:GLN:HB2	34:L2:146:GLY:O	2.18	0.43
3:A5:130:VAL:HG13	3:A5:131:PRO:HD2	2.01	0.43
5:A7:67:ILE:HG21	8:S1:193:ARG:HB2	2.00	0.43
15:V1:147:GLU:HG2	15:V1:155:ASP:CB	2.45	0.43
15:V1:236:GLU:O	15:V1:240:LEU:HB2	2.19	0.43
15:V1:255:PRO:HB2	15:V1:256:PRO:HD3	2.00	0.43
15:V1:377:LEU:HD21	15:V1:380:ALA:HB2	2.01	0.43
16:V2:124:LEU:O	16:V2:177:ILE:HD12	2.18	0.43
17:1M:174:GLN:OE1	17:1M:249:GLY:N	2.51	0.43
17:1M:195:LEU:HD22	17:1M:201:ALA:H	1.82	0.43
18:2M:417:VAL:HA	18:2M:420:VAL:HG22	2.00	0.43
25:AM:8:ASN:HD21	25:AM:20:VAL:HG22	1.83	0.43
30:S5:15:TYR:O	30:S5:18:TRP:N	2.51	0.43
32:G1:13:PHE:HD1	32:G1:13:PHE:HA	1.71	0.43
32:G1:88:ASP:OD2	34:L2:227:LEU:HD21	2.18	0.43
8:S1:480:ASN:OD1	8:S1:480:ASN:N	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:S1:581:PHE:HD1	8:S1:600:PHE:HB3	1.84	0.43
8:S1:686:PRO:O	8:S1:689:VAL:HG12	2.19	0.43
9:S2:129:THR:OG1	9:S2:130:PRO:HD3	2.18	0.43
17:1M:317:VAL:HA	23:A3:30:LEU:HD23	2.00	0.43
18:2M:98:SER:HA	18:2M:101:PHE:HD2	1.84	0.43
33:G2:102:ASP:OD1	33:G2:130:HIS:ND1	2.51	0.43
6:A9:73:PHE:CE2	6:A9:252:VAL:HG21	2.53	0.43
10:S3:93:ASP:H	10:S3:96:THR:HG21	1.84	0.43
15:V1:101:THR:OG1	15:V1:178:ARG:NH1	2.52	0.43
32:G1:176:PRO:HD2	32:G1:179:GLU:OE2	2.19	0.43
34:L2:117:VAL:HG12	34:L2:121:SER:OG	2.18	0.43
9:S2:10:ASN:HA	9:S2:32:MET:O	2.18	0.43
36:S2:401:PC1:H272	17:1M:283:VAL:HG21	2.00	0.43
10:S3:155:VAL:HB	10:S3:167:GLU:O	2.17	0.43
12:S6:81:CYS:SG	12:S6:82:LEU:N	2.91	0.43
13:S7:81:PRO:HD2	13:S7:109:ILE:O	2.19	0.43
15:V1:298:ASN:HD21	15:V1:368:ASP:HB2	1.83	0.43
15:V1:352:VAL:CG1	15:V1:375:SER:HB2	2.48	0.43
15:V1:445:LYS:HD3	15:V1:445:LYS:HA	1.70	0.43
18:2M:193:THR:HG21	20:4L:61:PHE:CE2	2.54	0.43
33:G2:48:ILE:HD13	33:G2:48:ILE:HA	1.78	0.43
6:A9:188:SER:HB2	6:A9:336:ASP:CG	2.39	0.43
6:A9:351:ALA:O	6:A9:352:LEU:HD22	2.19	0.43
8:S1:86:ILE:HG22	8:S1:87:PRO:O	2.19	0.43
11:S4:64:ARG:HE	11:S4:64:ARG:HB3	1.56	0.43
15:V1:250:LYS:HG2	15:V1:407:CYS:SG	2.58	0.43
16:V2:58:SER:O	16:V2:58:SER:OG	2.30	0.43
17:1M:32:ALA:HB1	17:1M:37:ARG:HG3	2.00	0.43
17:1M:230:LEU:HA	17:1M:230:LEU:HD12	1.67	0.43
18:2M:93:THR:HA	18:2M:96:THR:HG22	2.01	0.43
18:2M:115:ILE:O	18:2M:115:ILE:HG22	2.18	0.43
18:2M:192:ALA:HB1	18:2M:197:GLN:NE2	2.34	0.43
18:2M:390:ILE:HG23	18:2M:391:PRO:O	2.19	0.43
33:G2:76:GLY:O	33:G2:97:GLY:HA2	2.18	0.43
33:G2:99:ASN:OD1	33:G2:99:ASN:N	2.52	0.43
2:A2:84:LYS:HD2	2:A2:84:LYS:HA	1.82	0.43
7:AL:73:ARG:HH22	7:AL:101:ASP:HB3	1.84	0.43
8:S1:218:ARG:HD2	8:S1:272:GLY:O	2.19	0.43
8:S1:222:CYS:SG	8:S1:223:THR:N	2.90	0.43
8:S1:347:ASP:O	8:S1:349:MET:HG3	2.19	0.43
8:S1:377:LYS:HG3	8:S1:580:LYS:HB3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:S1:430:THR:HG23	8:S1:549:ASN:O	2.19	0.43
8:S1:654:ASP:O	8:S1:657:ILE:HG22	2.19	0.43
15:V1:186:ILE:HD12	15:V1:194:ARG:HD3	2.01	0.43
16:V2:150:LYS:H	16:V2:153:GLU:CB	2.31	0.43
17:1M:313:ALA:O	17:1M:317:VAL:HG23	2.19	0.43
18:2M:271:ILE:HD13	18:2M:271:ILE:HA	1.93	0.43
18:2M:421:THR:HA	18:2M:424:ILE:HG22	2.01	0.43
20:4L:13:ILE:HG22	20:4L:41:ALA:HB2	2.00	0.43
21:6M:166:ALA:O	21:6M:170:THR:HG22	2.18	0.43
34:L2:73:ALA:HB3	34:L2:92:ASP:H	1.84	0.43
6:A9:179:CYS:SG	6:A9:180:LEU:N	2.92	0.43
6:A9:208:ALA:O	6:A9:271:GLY:HA2	2.18	0.43
8:S1:58:ARG:HG2	8:S1:82:TYR:OH	2.18	0.43
8:S1:105:ARG:HE	8:S1:105:ARG:HB2	1.69	0.43
9:S2:363:LEU:HD23	9:S2:363:LEU:HA	1.78	0.43
10:S3:133:LEU:HD23	10:S3:133:LEU:HA	1.77	0.43
13:S7:182:GLY:HA3	13:S7:185:PRO:HG3	2.00	0.43
19:3M:71:ASP:HB3	19:3M:72:PRO:HD3	2.00	0.43
21:6M:164:ILE:O	21:6M:168:VAL:HG12	2.19	0.43
34:L2:97:TRP:HH2	34:L2:227:LEU:HG	1.84	0.43
3:A5:30:ARG:NE	3:A5:72:GLU:HA	2.34	0.42
6:A9:308:ILE:O	6:A9:312:LEU:HB2	2.19	0.42
8:S1:281:PHE:CD1	14:S8:150:ARG:HD2	2.54	0.42
8:S1:372:ILE:O	8:S1:377:LYS:NZ	2.48	0.42
11:S4:71:SER:OG	11:S4:87:ASP:OD2	2.22	0.42
14:S8:68:ILE:HD11	25:AM:46:ALA:HA	2.01	0.42
14:S8:158:ASP:N	14:S8:158:ASP:OD1	2.52	0.42
15:V1:226:HIS:HE1	16:V2:70:ILE:HD12	1.84	0.42
15:V1:304:PHE:CD2	15:V1:380:ALA:HB1	2.54	0.42
17:1M:73:LEU:HA	17:1M:73:LEU:HD12	1.82	0.42
17:1M:271:ILE:O	17:1M:274:ILE:HG22	2.18	0.42
19:3M:61:TYR:OH	20:4L:78:ALA:HB2	2.18	0.42
24:A8:67:LEU:HD21	24:A8:99:PHE:CZ	2.51	0.42
32:G1:140:GLU:HB3	32:G1:158:GLU:HG3	2.01	0.42
34:L2:88:VAL:HG23	34:L2:109:ILE:HG13	1.99	0.42
6:A9:283:THR:OG1	6:A9:286:ASP:OD2	2.37	0.42
7:AL:78:ALA:HA	7:AL:80:LYS:HZ3	1.83	0.42
8:S1:107:CYS:SG	8:S1:118:CYS:N	2.82	0.42
8:S1:253:VAL:HG12	8:S1:253:VAL:O	2.18	0.42
8:S1:273:ALA:HB3	37:S1:802:SF4:S4	2.58	0.42
8:S1:414:ILE:HD13	8:S1:564:LEU:HD11	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:S7:153:CYS:SG	13:S7:158:GLY:HA3	2.60	0.42
15:V1:183:TYR:CD2	15:V1:224:HIS:HB2	2.54	0.42
15:V1:451:THR:HG21	15:V1:456:GLY:HA3	2.01	0.42
18:2M:368:ALA:HB1	18:2M:371:LYS:HB2	2.01	0.42
33:G2:7:ALA:O	33:G2:10:SER:OG	2.30	0.42
33:G2:178:GLY:O	33:G2:179:GLU:HG2	2.19	0.42
7:AL:60:TYR:CE2	7:AL:92:TRP:HB3	2.54	0.42
8:S1:414:ILE:HG12	8:S1:569:VAL:HG12	2.01	0.42
8:S1:507:LEU:O	8:S1:510:ALA:HB3	2.19	0.42
8:S1:610:LYS:O	8:S1:611:SER:HB3	2.19	0.42
14:S8:138:ILE:HG12	14:S8:157:ILE:HG12	1.99	0.42
15:V1:82:LYS:HD3	15:V1:164:HIS:HB2	1.99	0.42
16:V2:46:THR:HG23	16:V2:79:GLN:HE21	1.84	0.42
17:1M:68:SER:OG	17:1M:129:ASN:HB2	2.19	0.42
21:6M:126:VAL:HG13	21:6M:128:ALA:H	1.84	0.42
25:AM:85:ILE:HD12	25:AM:85:ILE:HA	1.84	0.42
32:G1:90:ASN:ND2	32:G1:117:VAL:O	2.35	0.42
33:G2:180:VAL:CG2	33:G2:190:ARG:HB2	2.50	0.42
33:G2:210:LEU:HD21	34:L2:105:ASP:OD2	2.19	0.42
34:L2:102:LEU:HB3	34:L2:109:ILE:HD12	2.01	0.42
2:A2:4:ARG:HH12	2:A2:35:ASN:ND2	2.17	0.42
5:A7:19:LYS:HA	5:A7:20:PRO:HD3	1.86	0.42
6:A9:98:ASP:N	6:A9:98:ASP:OD1	2.49	0.42
7:AL:120:LYS:NZ	14:S8:206:ARG:HH12	2.18	0.42
8:S1:227:ARG:O	8:S1:231:GLU:HG3	2.19	0.42
9:S2:74:SER:O	9:S2:74:SER:OG	2.37	0.42
9:S2:240:ASP:C	9:S2:242:TYR:H	2.22	0.42
9:S2:358:PRO:HB2	9:S2:362:HIS:CE1	2.54	0.42
15:V1:81:LEU:HD12	15:V1:83:GLY:N	2.35	0.42
15:V1:137:ARG:HB2	15:V1:266:CYS:SG	2.59	0.42
15:V1:413:CYS:SG	37:V1:500:SF4:S4	3.17	0.42
16:V2:46:THR:HG23	16:V2:79:GLN:NE2	2.34	0.42
16:V2:73:LEU:HD12	16:V2:84:LEU:HD21	2.00	0.42
18:2M:50:SER:O	18:2M:54:THR:HG23	2.19	0.42
18:2M:351:ILE:HG21	18:2M:380:PHE:CD1	2.53	0.42
18:2M:366:LEU:HD13	18:2M:369:LEU:HD12	2.02	0.42
19:3M:80:TRP:HB2	21:6M:145:TYR:CZ	2.54	0.42
33:G2:88:ASP:OD1	33:G2:89:VAL:HG23	2.20	0.42
3:A5:18:THR:HG21	3:A5:23:LEU:HB2	2.01	0.42
6:A9:178:SER:O	6:A9:179:CYS:HB2	2.20	0.42
8:S1:730:THR:O	8:S1:733:SER:HB3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:S2:115:LEU:HD21	9:S2:182:PHE:CZ	2.55	0.42
12:S6:71:PRO:C	12:S6:73:LEU:H	2.22	0.42
17:1M:168:SER:O	17:1M:172:MET:HG2	2.19	0.42
18:2M:223:ALA:O	18:2M:227:LEU:HB2	2.19	0.42
22:A1:12:LEU:O	22:A1:15:ILE:HB	2.20	0.42
30:S5:18:TRP:HB2	30:S5:41:TYR:CE1	2.54	0.42
8:S1:671:TYR:CD1	8:S1:677:VAL:HG22	2.55	0.42
15:V1:109:LYS:HG3	15:V1:124:GLY:HA3	2.01	0.42
18:2M:163:GLU:H	18:2M:163:GLU:HG2	1.71	0.42
18:2M:474:PRO:HG2	28:C2:49:LEU:HD21	2.01	0.42
33:G2:218:ASN:HD21	34:L2:59:GLN:NE2	2.16	0.42
34:L2:127:TRP:CE3	34:L2:127:TRP:HA	2.54	0.42
5:A7:21:TRP:NE1	14:S8:85:LYS:HG3	2.35	0.42
8:S1:179:GLU:HA	11:S4:56:GLN:HE21	1.85	0.42
8:S1:261:LEU:O	8:S1:264:ASN:HB2	2.20	0.42
8:S1:650:ASP:O	8:S1:652:ARG:NH2	2.52	0.42
10:S3:122:SER:OG	10:S3:123:SER:N	2.52	0.42
13:S7:180:VAL:HG22	13:S7:181:PRO:HD2	2.01	0.42
17:1M:174:GLN:HE22	17:1M:246:LEU:C	2.23	0.42
24:A8:45:ASN:ND2	24:A8:47:GLU:HB2	2.34	0.42
31:X1:36:ARG:NH1	31:X1:76:TYR:OH	2.53	0.42
33:G2:95:GLY:N	33:G2:122:ILE:O	2.50	0.42
3:A5:92:GLU:HB3	10:S3:49:THR:OG1	2.19	0.42
6:A9:367:TYR:HB3	6:A9:368:PRO:HD3	2.00	0.42
8:S1:90:MET:HG2	8:S1:94:GLN:HB2	2.01	0.42
8:S1:327:GLU:OE2	11:S4:52:ARG:NH2	2.46	0.42
8:S1:338:ASP:OD2	8:S1:734:LYS:HB3	2.19	0.42
18:2M:61:GLY:HA3	31:X1:79:GLN:HE21	1.84	0.42
18:2M:64:LEU:O	18:2M:67:ILE:HB	2.19	0.42
22:A1:48:ALA:HA	22:A1:51:ARG:NH1	2.34	0.42
33:G2:152:LEU:HB2	33:G2:170:ARG:HA	2.01	0.42
6:A9:180:LEU:HD21	6:A9:346:ILE:O	2.20	0.42
9:S2:239:TYR:HD1	9:S2:240:ASP:HB2	1.85	0.42
9:S2:288:LYS:O	9:S2:289:ALA:HB2	2.19	0.42
9:S2:393:ASP:C	9:S2:394:ARG:HD3	2.40	0.42
31:X1:49:TYR:O	31:X1:53:ILE:HG23	2.19	0.42
32:G1:66:SER:O	32:G1:66:SER:OG	2.36	0.42
32:G1:88:ASP:OD1	32:G1:89:VAL:N	2.49	0.42
32:G1:107:HIS:CD2	32:G1:108:VAL:H	2.37	0.42
32:G1:197:MET:HA	32:G1:200:PHE:CD2	2.54	0.42
2:A2:70:LYS:HD2	2:A2:70:LYS:HA	1.87	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:AL:85:ALA:HB1	14:S8:100:LYS:NZ	2.35	0.42
7:AL:120:LYS:HE2	14:S8:206:ARG:NH2	2.35	0.42
8:S1:446:THR:HG22	8:S1:448:PRO:HD3	2.01	0.42
8:S1:466:ASN:N	8:S1:466:ASN:OD1	2.53	0.42
8:S1:699:LEU:HD23	8:S1:699:LEU:HA	1.86	0.42
15:V1:111:SER:HB2	15:V1:282:ILE:HD11	2.01	0.42
15:V1:368:ASP:O	15:V1:372:ALA:N	2.48	0.42
15:V1:407:CYS:SG	15:V1:408:GLY:N	2.93	0.42
18:2M:51:VAL:O	18:2M:54:THR:OG1	2.30	0.42
19:3M:5:ALA:HB3	19:3M:6:PRO:HD3	2.02	0.42
32:G1:217:GLU:OE1	33:G2:48:ILE:HA	2.20	0.42
8:S1:238:LEU:HD23	8:S1:238:LEU:HA	1.90	0.41
8:S1:338:ASP:OD2	8:S1:735:ILE:HG13	2.20	0.41
8:S1:678:ARG:HA	8:S1:681:ILE:HB	2.02	0.41
10:S3:53:VAL:HG23	10:S3:54:GLN:H	1.85	0.41
13:S7:111:ARG:HG2	13:S7:116:GLN:HG3	2.02	0.41
16:V2:67:SER:C	16:V2:69:VAL:H	2.23	0.41
17:1M:183:LEU:HB3	17:1M:186:VAL:HB	2.01	0.41
18:2M:96:THR:HG21	18:2M:253:PHE:HD1	1.84	0.41
20:4L:56:MET:HB2	30:S5:5:TRP:O	2.20	0.41
21:6M:160:LEU:O	21:6M:164:ILE:HG23	2.20	0.41
32:G1:42:HIS:HE1	32:G1:64:SER:HA	1.85	0.41
32:G1:124:ASP:N	32:G1:124:ASP:OD1	2.51	0.41
7:AL:24:LEU:HD23	7:AL:24:LEU:O	2.20	0.41
8:S1:391:ALA:HB3	8:S1:630:THR:HG23	2.02	0.41
18:2M:72:ARG:HD3	18:2M:72:ARG:HA	1.79	0.41
19:3M:112:ARG:HA	19:3M:112:ARG:HD3	1.76	0.41
31:X1:35:LEU:HD23	31:X1:35:LEU:HA	1.79	0.41
32:G1:137:CYS:HB2	32:G1:155:VAL:HG13	2.03	0.41
33:G2:101:GLN:HG2	33:G2:207:TYR:OH	2.20	0.41
3:A5:71:GLU:CD	3:A5:80:ARG:HE	2.24	0.41
6:A9:236:PHE:HD2	6:A9:300:ARG:HB2	1.85	0.41
8:S1:237:ASP:OD1	8:S1:237:ASP:N	2.53	0.41
9:S2:41:GLU:OE2	10:S3:130:ARG:NH2	2.52	0.41
9:S2:200:LYS:HE3	9:S2:200:LYS:HB2	1.88	0.41
15:V1:262:GLY:HA3	15:V1:268:THR:OG1	2.20	0.41
15:V1:397:ARG:NH2	16:V2:127:GLY:O	2.53	0.41
17:1M:168:SER:O	17:1M:171:VAL:HG22	2.21	0.41
18:2M:98:SER:HA	18:2M:101:PHE:CD2	2.55	0.41
25:AM:5:TYR:HB2	25:AM:9:LYS:HB3	2.01	0.41
32:G1:166:GLY:CA	33:G2:168:LEU:HD22	2.47	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:G1:175:ILE:HD12	32:G1:181:TRP:NE1	2.36	0.41
32:G1:214:HIS:CE1	33:G2:48:ILE:HD11	2.55	0.41
7:AL:126:GLU:N	7:AL:126:GLU:OE2	2.54	0.41
8:S1:744:LEU:HD23	8:S1:744:LEU:HA	1.91	0.41
15:V1:141:LEU:HD12	15:V1:177:MET:SD	2.61	0.41
15:V1:154:LYS:HG3	15:V1:155:ASP:OD1	2.21	0.41
16:V2:198:THR:OG1	16:V2:199:PRO:HD2	2.20	0.41
18:2M:266:ILE:HD13	18:2M:266:ILE:HA	1.87	0.41
19:3M:68:ILE:HD11	21:6M:61:ILE:HA	2.02	0.41
20:4L:78:ALA:HA	20:4L:81:VAL:HG12	2.02	0.41
23:A3:38:LEU:O	23:A3:42:GLN:HG2	2.20	0.41
36:C2:101:PC1:H152	32:G1:28:ARG:NH2	2.35	0.41
33:G2:67:VAL:HB	33:G2:71:VAL:HG21	2.02	0.41
8:S1:618:ILE:HD13	8:S1:618:ILE:HA	1.91	0.41
13:S7:103:LEU:HA	13:S7:103:LEU:HD23	1.86	0.41
13:S7:153:CYS:SG	37:S7:301:SF4:S4	3.09	0.41
14:S8:140:ILE:HD12	14:S8:155:TYR:CD2	2.56	0.41
15:V1:245:GLU:OE2	15:V1:247:LYS:NZ	2.52	0.41
16:V2:83:TRP:CE2	16:V2:117:LYS:HB3	2.56	0.41
16:V2:195:GLU:HB2	16:V2:219:THR:HG22	2.02	0.41
17:1M:26:ALA:HB1	22:A1:12:LEU:HG	2.02	0.41
17:1M:306:LEU:HD23	17:1M:306:LEU:HA	1.74	0.41
24:A8:74:GLU:OE2	24:A8:74:GLU:N	2.44	0.41
8:S1:372:ILE:HG12	8:S1:600:PHE:CD1	2.56	0.41
9:S2:188:GLU:OE1	14:S8:86:TYR:OH	2.26	0.41
10:S3:6:ILE:HD11	10:S3:82:TYR:CD2	2.56	0.41
10:S3:113:ARG:CZ	10:S3:132:ILE:HD11	2.50	0.41
10:S3:153:VAL:HG13	10:S3:153:VAL:O	2.20	0.41
15:V1:253:LEU:O	15:V1:256:PRO:HD2	2.20	0.41
15:V1:407:CYS:HB2	16:V2:109:PHE:CE1	2.55	0.41
15:V1:423:ILE:HG21	15:V1:440:LEU:HD13	2.02	0.41
16:V2:77:GLN:HE22	16:V2:113:PHE:HA	1.85	0.41
16:V2:155:THR:HB	16:V2:160:PHE:HB2	2.02	0.41
21:6M:25:HIS:O	21:6M:29:PHE:HD1	2.03	0.41
21:6M:48:PHE:O	21:6M:52:ILE:HG12	2.21	0.41
33:G2:195:GLU:OE2	33:G2:196:GLU:HG3	2.20	0.41
3:A5:28:ASN:O	3:A5:32:VAL:HG23	2.20	0.41
3:A5:53:TYR:O	3:A5:57:VAL:HG12	2.20	0.41
8:S1:423:ARG:O	8:S1:427:ILE:HG12	2.20	0.41
8:S1:650:ASP:N	8:S1:650:ASP:OD1	2.53	0.41
9:S2:67:PHE:HZ	9:S2:353:CYS:SG	2.44	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:1M:9:ILE:HD12	19:3M:10:TYR:HB2	2.03	0.41
17:1M:17:LEU:HA	17:1M:20:VAL:HG12	2.03	0.41
17:1M:61:LYS:HA	17:1M:61:LYS:HD3	1.93	0.41
18:2M:90:LEU:HD23	18:2M:90:LEU:HA	1.90	0.41
18:2M:180:LEU:HB3	20:4L:42:VAL:HG11	2.02	0.41
19:3M:80:TRP:HB2	21:6M:145:TYR:CE2	2.55	0.41
24:A8:2:ALA:HB2	24:A8:83:TYR:CG	2.55	0.41
33:G2:157:VAL:HA	33:G2:175:ILE:HB	2.01	0.41
6:A9:205:LEU:HD23	6:A9:205:LEU:HA	1.87	0.41
8:S1:474:GLY:O	8:S1:488:THR:HG22	2.20	0.41
8:S1:542:ASN:O	8:S1:542:ASN:ND2	2.54	0.41
10:S3:45:LEU:O	10:S3:46:LYS:HB3	2.20	0.41
14:S8:165:CYS:SG	14:S8:166:GLY:N	2.94	0.41
16:V2:56:ILE:HD13	16:V2:71:PRO:HB2	2.02	0.41
16:V2:126:CYS:SG	16:V2:127:GLY:N	2.94	0.41
18:2M:198:LEU:O	18:2M:202:LEU:HG	2.20	0.41
18:2M:202:LEU:HA	30:S5:38:ARG:HH12	1.86	0.41
18:2M:327:THR:HG22	18:2M:328:ILE:H	1.86	0.41
18:2M:446:LEU:O	18:2M:446:LEU:HD12	2.20	0.41
21:6M:111:PRO:HG3	30:S5:51:PHE:CG	2.55	0.41
25:AM:26:PRO:HD2	25:AM:30:PHE:CZ	2.56	0.41
33:G2:57:LYS:HG3	34:L2:48:SER:HB2	2.03	0.41
34:L2:169:MET:SD	34:L2:188:PRO:HD3	2.60	0.41
8:S1:149:THR:HG22	8:S1:150:PRO:HD2	2.03	0.41
8:S1:214:THR:HA	8:S1:273:ALA:O	2.21	0.41
9:S2:110:ARG:HA	9:S2:334:PRO:HG3	2.01	0.41
9:S2:194:THR:HG1	9:S2:261:TYR:HH	1.61	0.41
9:S2:203:LEU:HD12	9:S2:203:LEU:HA	1.94	0.41
9:S2:318:GLU:HG3	9:S2:319:GLY:O	2.20	0.41
9:S2:358:PRO:O	9:S2:362:HIS:ND1	2.54	0.41
9:S2:366:LEU:O	9:S2:370:SER:HB3	2.20	0.41
12:S6:57:LYS:HE2	12:S6:57:LYS:HB2	1.88	0.41
12:S6:75:HIS:ND1	12:S6:92:TYR:HB2	2.36	0.41
14:S8:209:THR:HG23	14:S8:210:GLU:N	2.36	0.41
15:V1:140:TYR:CE1	15:V1:181:ALA:HB3	2.56	0.41
15:V1:153:CYS:SG	16:V2:170:CYS:HA	2.60	0.41
15:V1:272:ASN:O	15:V1:276:VAL:HG12	2.21	0.41
15:V1:437:ILE:HD11	15:V1:471:ARG:CZ	2.51	0.41
16:V2:117:LYS:HE2	16:V2:117:LYS:HB2	1.87	0.41
17:1M:91:VAL:O	17:1M:91:VAL:HG13	2.21	0.41
17:1M:173:ALA:HB2	25:AM:71:ARG:HH12	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:1M:176:GLN:O	17:1M:176:GLN:NE2	2.52	0.41
18:2M:155:LYS:O	18:2M:158:SER:OG	2.39	0.41
18:2M:347:ASP:OD2	18:2M:383:THR:OG1	2.29	0.41
25:AM:114:ASP:OD1	25:AM:114:ASP:N	2.53	0.41
32:G1:105:LEU:HD22	34:L2:148:TYR:HE1	1.85	0.41
32:G1:116:LYS:HA	32:G1:116:LYS:HD3	1.78	0.41
32:G1:184:ASN:HA	32:G1:185:PRO:HA	1.93	0.41
33:G2:71:VAL:HG12	33:G2:92:ILE:HB	2.02	0.41
8:S1:62:ALA:HB2	11:S4:62:VAL:HG11	2.02	0.41
8:S1:82:TYR:HA	8:S1:83:PRO:HD3	1.91	0.41
8:S1:140:LEU:O	8:S1:143:MET:HG2	2.21	0.41
8:S1:436:GLU:HG3	8:S1:458:ARG:HD2	2.02	0.41
9:S2:222:VAL:O	9:S2:226:GLY:N	2.53	0.41
9:S2:356:ARG:HE	10:S3:57:ILE:HG23	1.85	0.41
14:S8:115:ARG:HA	14:S8:122:ARG:HG3	2.02	0.41
15:V1:93:THR:O	15:V1:97:VAL:HG22	2.20	0.41
17:1M:257:LEU:O	17:1M:259:ILE:N	2.53	0.41
18:2M:70:LEU:HA	18:2M:73:ASN:HB3	2.03	0.41
20:4L:45:ASN:OD1	20:4L:46:PHE:N	2.54	0.41
27:C:13:UNK:O	27:C:17:UNK:N	2.54	0.41
34:L2:169:MET:HG3	34:L2:186:VAL:O	2.20	0.41
2:A2:3:TRP:HZ3	2:A2:86:LEU:HD23	1.85	0.40
6:A9:91:VAL:O	6:A9:114:PRO:HA	2.21	0.40
6:A9:298:TRP:HA	6:A9:299:PRO:HD3	1.94	0.40
8:S1:162:PHE:CD2	15:V1:412:PRO:HA	2.56	0.40
8:S1:685:ALA:HA	8:S1:686:PRO:HD3	1.85	0.40
18:2M:7:ALA:HB2	18:2M:67:ILE:HG22	2.03	0.40
18:2M:295:ALA:HB2	18:2M:421:THR:OG1	2.21	0.40
18:2M:474:PRO:O	18:2M:478:VAL:HG12	2.21	0.40
28:C2:9:GLY:HA3	28:C2:43:ALA:HA	2.02	0.40
32:G1:51:LYS:HE2	32:G1:51:LYS:HB3	1.93	0.40
8:S1:340:LEU:HG	8:S1:344:ARG:HH22	1.85	0.40
8:S1:632:GLN:HE21	8:S1:636:GLY:HA2	1.87	0.40
9:S2:147:ARG:NH1	9:S2:174:ASP:OD2	2.52	0.40
13:S7:194:LEU:HD23	13:S7:194:LEU:HA	1.87	0.40
14:S8:139:THR:HB	14:S8:156:ASP:OD1	2.21	0.40
15:V1:266:CYS:O	15:V1:268:THR:HG23	2.20	0.40
18:2M:168:TYR:HD1	18:2M:242:ILE:HD12	1.86	0.40
18:2M:186:ILE:HG13	18:2M:218:GLY:HA3	2.02	0.40
18:2M:252:ALA:O	18:2M:256:ILE:HG13	2.21	0.40
19:3M:4:PHE:HA	19:3M:7:ILE:HB	2.02	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:L2:88:VAL:HA	34:L2:109:ILE:HG13	2.04	0.40
34:L2:201:ASN:OD1	34:L2:201:ASN:N	2.54	0.40
5:A7:110:LEU:H	5:A7:110:LEU:HD23	1.85	0.40
8:S1:588:ASP:O	8:S1:589:ASP:C	2.60	0.40
8:S1:669:LEU:HD13	8:S1:669:LEU:HA	1.94	0.40
8:S1:730:THR:O	8:S1:733:SER:C	2.60	0.40
15:V1:309:HIS:HD2	16:V2:133:ILE:HD12	1.87	0.40
16:V2:215:PRO:HA	16:V2:216:PRO:HD3	1.97	0.40
18:2M:189:SER:OG	18:2M:214:GLY:HA3	2.21	0.40
19:3M:93:TRP:CE3	19:3M:93:TRP:HA	2.56	0.40
19:3M:111:LYS:HD2	19:3M:111:LYS:HA	1.76	0.40
20:4L:47:LEU:HA	20:4L:47:LEU:HD23	1.85	0.40
6:A9:239:LEU:HG	6:A9:301:TYR:HB3	2.04	0.40
8:S1:140:LEU:HB2	8:S1:143:MET:HE3	2.03	0.40
8:S1:394:MET:CE	8:S1:559:ALA:HB1	2.51	0.40
8:S1:500:ARG:N	8:S1:500:ARG:HD2	2.36	0.40
9:S2:71:ASP:OD2	9:S2:335:LYS:HD3	2.22	0.40
16:V2:96:ILE:HG13	16:V2:98:VAL:HG23	2.02	0.40
17:1M:17:LEU:HD21	17:1M:82:PHE:HZ	1.85	0.40
17:1M:107:LEU:HD22	17:1M:155:LEU:HD22	2.04	0.40
17:1M:164:SER:HB3	17:1M:169:GLU:HG2	2.03	0.40
17:1M:177:ILE:HG21	25:AM:63:GLN:HB3	2.02	0.40
18:2M:233:VAL:HG21	18:2M:290:SER:CA	2.52	0.40
18:2M:392:PRO:HB2	18:2M:469:PHE:CD2	2.56	0.40
34:L2:202:PRO:HG2	34:L2:204:ARG:NH1	2.36	0.40
8:S1:316:ILE:HD11	8:S1:334:ARG:HA	2.02	0.40
9:S2:100:TYR:CE1	9:S2:241:VAL:HG21	2.57	0.40
13:S7:148:ILE:HA	13:S7:178:ILE:O	2.20	0.40
15:V1:406:SER:OG	15:V1:413:CYS:SG	2.64	0.40
15:V1:415:GLU:N	15:V1:415:GLU:OE1	2.54	0.40
16:V2:192:ASN:N	16:V2:192:ASN:OD1	2.55	0.40
18:2M:59:ALA:HA	18:2M:83:TYR:HE1	1.87	0.40
18:2M:203:THR:O	18:2M:205:TYR:N	2.43	0.40
19:3M:14:SER:HA	19:3M:17:VAL:HG12	2.02	0.40
21:6M:117:ILE:HD13	21:6M:117:ILE:HA	1.90	0.40
24:A8:33:ASN:OD1	25:AM:87:PRO:HG2	2.21	0.40
33:G2:142:GLU:O	33:G2:160:ASN:HA	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 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 EM 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	
2	A2	90/98 (92%)	75 (83%)	15 (17%)	0	100	100
3	A5	124/169 (73%)	105 (85%)	18 (14%)	1 (1%)	19	57
4	A6	13/132 (10%)	7 (54%)	6 (46%)	0	100	100
5	A7	107/127 (84%)	86 (80%)	18 (17%)	3 (3%)	5	34
6	A9	324/396 (82%)	257 (79%)	66 (20%)	1 (0%)	41	75
7	AL	133/156 (85%)	104 (78%)	29 (22%)	0	100	100
8	S1	686/746 (92%)	582 (85%)	103 (15%)	1 (0%)	51	84
9	S2	378/394 (96%)	325 (86%)	53 (14%)	0	100	100
10	S3	182/190 (96%)	143 (79%)	38 (21%)	1 (0%)	29	67
11	S4	99/146 (68%)	91 (92%)	8 (8%)	0	100	100
12	S6	70/103 (68%)	45 (64%)	25 (36%)	0	100	100
13	S7	156/213 (73%)	130 (83%)	25 (16%)	1 (1%)	25	63
14	S8	179/222 (81%)	152 (85%)	27 (15%)	0	100	100
15	V1	431/491 (88%)	367 (85%)	64 (15%)	0	100	100
16	V2	214/251 (85%)	172 (80%)	39 (18%)	3 (1%)	11	46
17	1M	314/325 (97%)	279 (89%)	35 (11%)	0	100	100
18	2M	486/488 (100%)	431 (89%)	54 (11%)	1 (0%)	47	79
19	3M	83/118 (70%)	77 (93%)	6 (7%)	0	100	100
20	4L	84/100 (84%)	79 (94%)	5 (6%)	0	100	100
21	6M	149/205 (73%)	138 (93%)	11 (7%)	0	100	100
22	A1	60/65 (92%)	54 (90%)	6 (10%)	0	100	100
23	A3	42/63 (67%)	41 (98%)	1 (2%)	0	100	100
24	A8	103/106 (97%)	88 (85%)	14 (14%)	1 (1%)	15	52
25	AM	140/143 (98%)	109 (78%)	31 (22%)	0	100	100
28	C2	70/81 (86%)	68 (97%)	2 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
29	P2	28/115 (24%)	26 (93%)	2 (7%)	0	100	100
30	S5	64/399 (16%)	55 (86%)	9 (14%)	0	100	100
31	X1	97/101 (96%)	88 (91%)	9 (9%)	0	100	100
32	G1	229/270 (85%)	186 (81%)	43 (19%)	0	100	100
33	G2	234/273 (86%)	197 (84%)	37 (16%)	0	100	100
34	L2	203/256 (79%)	168 (83%)	35 (17%)	0	100	100
All	All	5572/6942 (80%)	4725 (85%)	834 (15%)	13 (0%)	50	79

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	A7	22	GLU
24	A8	15	SER
6	A9	189	ARG
16	V2	39	PRO
16	V2	158	GLY
5	A7	105	PHE
16	V2	152	ASN
18	2M	451	ASP
3	A5	112	PRO
8	S1	590	VAL
5	A7	106	PRO
10	S3	95	VAL
13	S7	180	VAL

5.3.2 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 EM 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	
2	A2	76/81 (94%)	76 (100%)	0	100	100
3	A5	112/149 (75%)	112 (100%)	0	100	100
4	A6	14/118 (12%)	14 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	A7	95/111 (86%)	95 (100%)	0	100	100
6	A9	276/334 (83%)	275 (100%)	1 (0%)	91	94
7	AL	117/134 (87%)	117 (100%)	0	100	100
8	S1	571/622 (92%)	570 (100%)	1 (0%)	93	96
9	S2	328/339 (97%)	324 (99%)	4 (1%)	71	83
10	S3	173/179 (97%)	171 (99%)	2 (1%)	71	83
11	S4	82/119 (69%)	82 (100%)	0	100	100
12	S6	64/94 (68%)	64 (100%)	0	100	100
13	S7	133/180 (74%)	131 (98%)	2 (2%)	65	80
14	S8	162/193 (84%)	159 (98%)	3 (2%)	57	75
15	V1	349/400 (87%)	347 (99%)	2 (1%)	86	91
16	V2	186/216 (86%)	186 (100%)	0	100	100
17	1M	266/271 (98%)	265 (100%)	1 (0%)	91	94
18	2M	407/408 (100%)	406 (100%)	1 (0%)	93	96
19	3M	79/105 (75%)	79 (100%)	0	100	100
20	4L	75/86 (87%)	75 (100%)	0	100	100
21	6M	119/186 (64%)	119 (100%)	0	100	100
22	A1	49/52 (94%)	49 (100%)	0	100	100
23	A3	36/51 (71%)	36 (100%)	0	100	100
24	A8	95/96 (99%)	95 (100%)	0	100	100
25	AM	115/116 (99%)	115 (100%)	0	100	100
28	C2	58/66 (88%)	58 (100%)	0	100	100
29	P2	17/85 (20%)	17 (100%)	0	100	100
30	S5	59/349 (17%)	58 (98%)	1 (2%)	60	78
31	X1	82/84 (98%)	82 (100%)	0	100	100
32	G1	185/216 (86%)	184 (100%)	1 (0%)	88	93
33	G2	192/226 (85%)	191 (100%)	1 (0%)	88	93
34	L2	177/217 (82%)	176 (99%)	1 (1%)	86	91
All	All	4749/5883 (81%)	4728 (100%)	21 (0%)	91	94

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	A9	222	ARG
8	S1	659	ARG
9	S2	49	ARG
9	S2	210	THR
9	S2	356	ARG
9	S2	394	ARG
10	S3	130	ARG
10	S3	163	ARG
13	S7	88	CYS
13	S7	162	TYR
14	S8	85	LYS
14	S8	86	TYR
14	S8	126	CYS
15	V1	407	CYS
15	V1	413	CYS
17	1M	280	TYR
18	2M	65	LEU
30	S5	66	ARG
32	G1	13	PHE
33	G2	141	ASP
34	L2	165	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (73) such sidechains are listed below:

Mol	Chain	Res	Type
2	A2	20	GLN
2	A2	35	ASN
5	A7	45	GLN
5	A7	58	ASN
5	A7	77	ASN
5	A7	119	ASN
6	A9	48	HIS
6	A9	80	GLN
6	A9	88	GLN
6	A9	118	ASN
6	A9	133	ASN
7	AL	44	HIS
7	AL	87	GLN
8	S1	109	HIS
8	S1	485	HIS
8	S1	527	GLN
8	S1	549	ASN
8	S1	571	GLN

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Mol	Chain	Res	Type
8	S1	640	GLN
8	S1	683	ASN
8	S1	722	ASN
9	S2	10	ASN
9	S2	48	HIS
9	S2	113	ASN
9	S2	121	HIS
9	S2	212	GLN
9	S2	364	GLN
10	S3	4	GLN
10	S3	27	HIS
10	S3	29	ASN
10	S3	40	GLN
11	S4	57	GLN
12	S6	102	HIS
13	S7	72	ASN
13	S7	116	GLN
15	V1	226	HIS
16	V2	37	ASN
16	V2	77	GLN
16	V2	79	GLN
16	V2	122	HIS
16	V2	221	ASN
17	1M	143	GLN
17	1M	176	GLN
17	1M	199	ASN
17	1M	294	GLN
18	2M	24	HIS
18	2M	42	ASN
18	2M	197	GLN
18	2M	265	ASN
18	2M	332	GLN
22	A1	2	ASN
22	A1	24	ASN
22	A1	30	HIS
22	A1	34	HIS
22	A1	39	HIS
24	A8	10	ASN
24	A8	24	HIS
24	A8	45	ASN
25	AM	8	ASN
25	AM	90	GLN

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Mol	Chain	Res	Type
28	C2	35	HIS
28	C2	71	ASN
29	P2	86	ASN
30	S5	10	ASN
30	S5	46	HIS
31	X1	79	GLN
32	G1	101	GLN
33	G2	107	HIS
33	G2	212	GLN
33	G2	218	ASN
34	L2	107	ASN
34	L2	164	GLN
34	L2	231	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 18 ligands modelled in this entry, 2 are monoatomic - leaving 16 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
40	FMN	V1	501	-	33,33,33	0.31	0	48,50,50	0.35	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
38	FES	S1	803	8	0,4,4	-	-	-		
35	NAP	A9	401	-	45,52,52	1.41	5 (11%)	56,80,80	1.38	6 (10%)
37	SF4	S8	301	14	0,12,12	-	-	-		
38	FES	V2	300	16	0,4,4	-	-	-		
36	PC1	G1	701	-	26,26,53	0.43	0	32,34,61	0.39	0
37	SF4	S7	301	-	0,12,12	-	-	-		
36	PC1	G1	702	-	39,39,53	0.34	0	45,47,61	0.36	0
36	PC1	S2	401	-	44,44,53	0.32	0	50,52,61	0.30	0
37	SF4	S1	801	8	0,12,12	-	-	-		
36	PC1	A1	101	-	36,36,53	0.34	0	42,44,61	0.32	0
36	PC1	C2	101	-	36,36,53	0.36	0	42,44,61	0.38	0
37	SF4	S1	802	8	0,12,12	-	-	-		
37	SF4	S8	302	14	0,12,12	-	-	-		
36	PC1	AL	401	-	28,28,53	0.39	0	34,36,61	0.43	0
37	SF4	V1	500	-	0,12,12	-	-	-		

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
40	FMN	V1	501	-	-	6/18/18/18	0/3/3/3
38	FES	S1	803	8	-	-	0/1/1/1
35	NAP	A9	401	-	-	20/31/67/67	0/5/5/5
37	SF4	S8	301	14	-	-	0/6/5/5
38	FES	V2	300	16	-	-	0/1/1/1
36	PC1	G1	701	-	-	6/30/30/57	-
37	SF4	S7	301	-	-	-	0/6/5/5
36	PC1	G1	702	-	-	12/43/43/57	-
36	PC1	S2	401	-	-	12/48/48/57	-
37	SF4	S1	801	8	-	-	0/6/5/5
36	PC1	A1	101	-	-	10/40/40/57	-
36	PC1	C2	101	-	-	11/40/40/57	-
37	SF4	S1	802	8	-	-	0/6/5/5
37	SF4	S8	302	14	-	-	0/6/5/5
36	PC1	AL	401	-	-	7/32/32/57	-
37	SF4	V1	500	-	-	-	0/6/5/5

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
35	A9	401	NAP	C4N-C3N	5.54	1.48	1.39
35	A9	401	NAP	C5N-C4N	4.61	1.48	1.38
35	A9	401	NAP	C6N-C5N	-2.85	1.32	1.38
35	A9	401	NAP	C2N-C3N	-2.53	1.35	1.39
35	A9	401	NAP	C2N-N1N	2.19	1.37	1.35

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
35	A9	401	NAP	C5N-C4N-C3N	-7.16	111.87	120.34
35	A9	401	NAP	C6N-N1N-C2N	-3.49	118.80	121.97
35	A9	401	NAP	C3N-C2N-N1N	2.80	123.16	120.43
35	A9	401	NAP	C6N-C5N-C4N	2.39	122.91	119.44
35	A9	401	NAP	C5A-C6A-N6A	2.26	123.78	120.35
35	A9	401	NAP	C2N-C3N-C4N	2.16	120.70	118.26

There are no chirality outliers.

All (84) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
35	A9	401	NAP	C5B-O5B-PA-O1A
35	A9	401	NAP	C5B-O5B-PA-O2A
35	A9	401	NAP	C2B-O2B-P2B-O1X
35	A9	401	NAP	C2B-O2B-P2B-O3X
35	A9	401	NAP	O4D-C1D-N1N-C2N
35	A9	401	NAP	O4D-C1D-N1N-C6N
35	A9	401	NAP	C2N-C3N-C7N-O7N
35	A9	401	NAP	C2N-C3N-C7N-N7N
36	AL	401	PC1	C1-O11-P-O12
36	AL	401	PC1	C1-O11-P-O14
36	AL	401	PC1	C1-O11-P-O13
36	S2	401	PC1	C1-O11-P-O12
36	S2	401	PC1	C1-O11-P-O14
36	A1	101	PC1	C11-O13-P-O12
36	A1	101	PC1	C11-O13-P-O14
36	A1	101	PC1	C1-O11-P-O14
36	A1	101	PC1	C1-O11-P-O13
36	C2	101	PC1	O13-C11-C12-N
36	G1	701	PC1	C1-O11-P-O12
36	G1	702	PC1	C1-O11-P-O12
36	G1	702	PC1	C1-O11-P-O13
40	V1	501	FMN	N10-C1'-C2'-O2'

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Mol	Chain	Res	Type	Atoms
40	V1	501	FMN	C3'-C4'-C5'-O5'
40	V1	501	FMN	C5'-O5'-P-O1P
40	V1	501	FMN	C5'-O5'-P-O2P
40	V1	501	FMN	C5'-O5'-P-O3P
35	A9	401	NAP	C4N-C3N-C7N-O7N
35	A9	401	NAP	C4N-C3N-C7N-N7N
36	A1	101	PC1	C2-C1-O11-P
35	A9	401	NAP	C1B-C2B-O2B-P2B
36	S2	401	PC1	C1-O11-P-O13
36	A1	101	PC1	C11-O13-P-O11
36	G1	701	PC1	C11-O13-P-O11
40	V1	501	FMN	O4'-C4'-C5'-O5'
36	A1	101	PC1	C11-C12-N-C13
36	C2	101	PC1	C11-O13-P-O11
36	C2	101	PC1	O11-C1-C2-C3
35	A9	401	NAP	C3B-C2B-O2B-P2B
36	A1	101	PC1	C11-C12-N-C14
36	C2	101	PC1	C26-C27-C28-C29
36	A1	101	PC1	C11-C12-N-C15
35	A9	401	NAP	C4B-C5B-O5B-PA
36	S2	401	PC1	C2-C1-O11-P
36	S2	401	PC1	O11-C1-C2-C3
36	AL	401	PC1	C1-C2-C3-O31
36	S2	401	PC1	O11-C1-C2-O21
36	C2	101	PC1	O11-C1-C2-O21
36	G1	702	PC1	O11-C1-C2-O21
36	S2	401	PC1	C11-C12-N-C15
36	S2	401	PC1	C11-O13-P-O11
36	G1	701	PC1	C1-O11-P-O13
36	S2	401	PC1	C11-C12-N-C14
36	G1	701	PC1	C11-O13-P-O12
36	G1	701	PC1	C11-O13-P-O14
36	G1	701	PC1	C1-O11-P-O14
36	G1	702	PC1	C1-O11-P-O14
36	G1	702	PC1	O11-C1-C2-C3
36	S2	401	PC1	C12-C11-O13-P
36	AL	401	PC1	O13-C11-C12-N
36	G1	702	PC1	O13-C11-C12-N
36	AL	401	PC1	O21-C2-C3-O31
36	C2	101	PC1	C11-C12-N-C15
36	G1	702	PC1	C11-O13-P-O11
35	A9	401	NAP	PN-O3-PA-O1A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
36	S2	401	PC1	C11-C12-N-C13
35	A9	401	NAP	O4B-C4B-C5B-O5B
36	G1	702	PC1	C33-C34-C35-C36
36	C2	101	PC1	C11-C12-N-C14
36	AL	401	PC1	C1-C2-O21-C21
36	G1	702	PC1	O31-C31-C32-C33
36	C2	101	PC1	C11-C12-N-C13
35	A9	401	NAP	C5B-O5B-PA-O3
35	A9	401	NAP	C5D-O5D-PN-O3
35	A9	401	NAP	C2D-C1D-N1N-C6N
36	G1	702	PC1	C26-C27-C28-C29
36	C2	101	PC1	O21-C21-C22-C23
35	A9	401	NAP	PA-O3-PN-O1N
36	G1	702	PC1	C27-C28-C29-C2A
36	G1	702	PC1	O32-C31-C32-C33
36	A1	101	PC1	C32-C33-C34-C35
35	A9	401	NAP	C5D-O5D-PN-O2N
36	C2	101	PC1	C11-O13-P-O14
36	C2	101	PC1	C1-O11-P-O14
36	S2	401	PC1	C38-C39-C3A-C3B

There are no ring outliers.

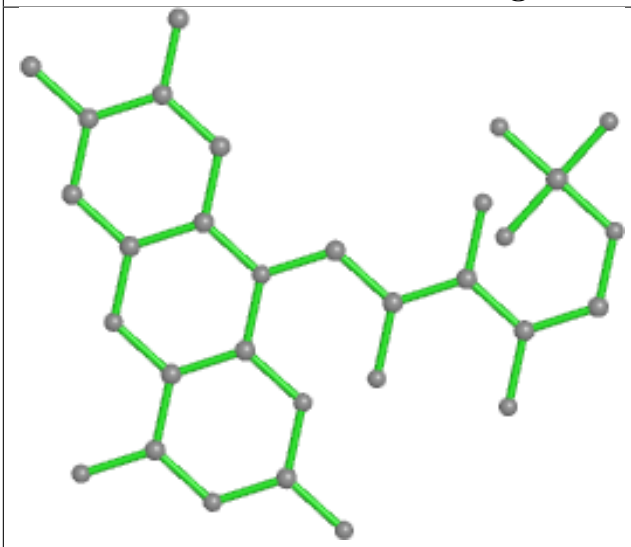
13 monomers are involved in 38 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
40	V1	501	FMN	3	0
35	A9	401	NAP	7	0
36	G1	701	PC1	3	0
37	S7	301	SF4	2	0
36	G1	702	PC1	5	0
36	S2	401	PC1	1	0
37	S1	801	SF4	1	0
36	A1	101	PC1	1	0
36	C2	101	PC1	6	0
37	S1	802	SF4	5	0
37	S8	302	SF4	2	0
36	AL	401	PC1	2	0
37	V1	500	SF4	3	0

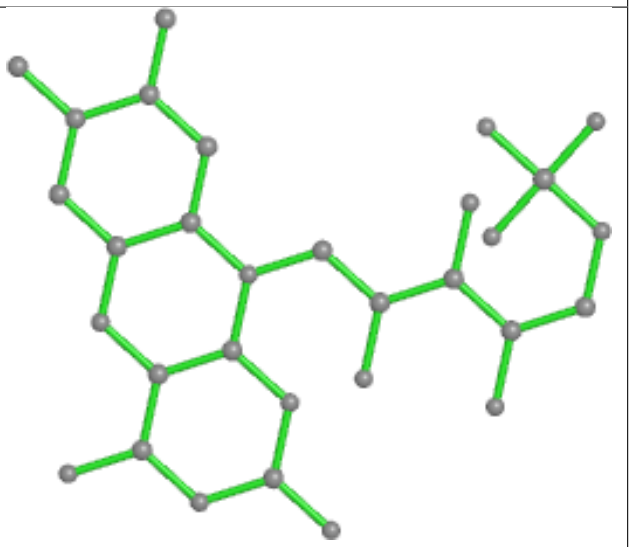
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

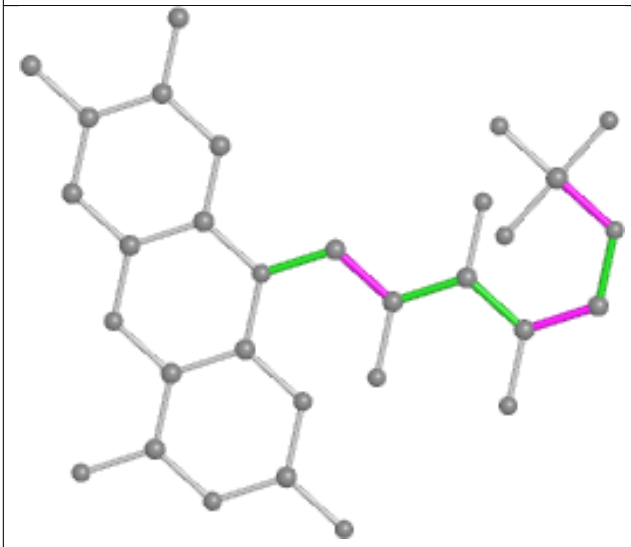
Ligand FMN V1 501



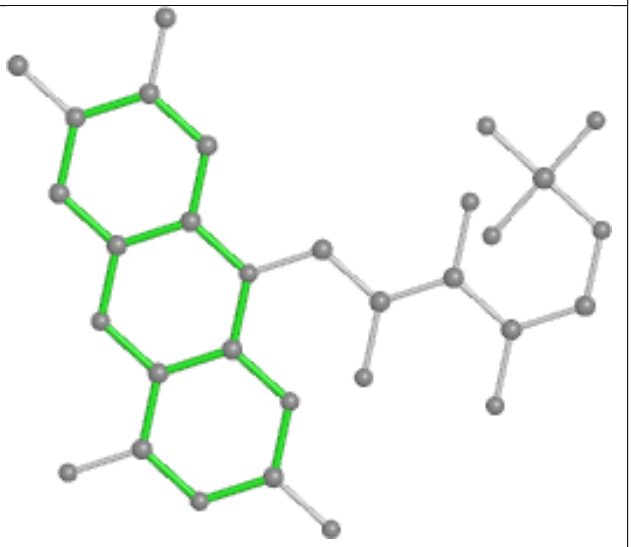
Bond lengths



Bond angles

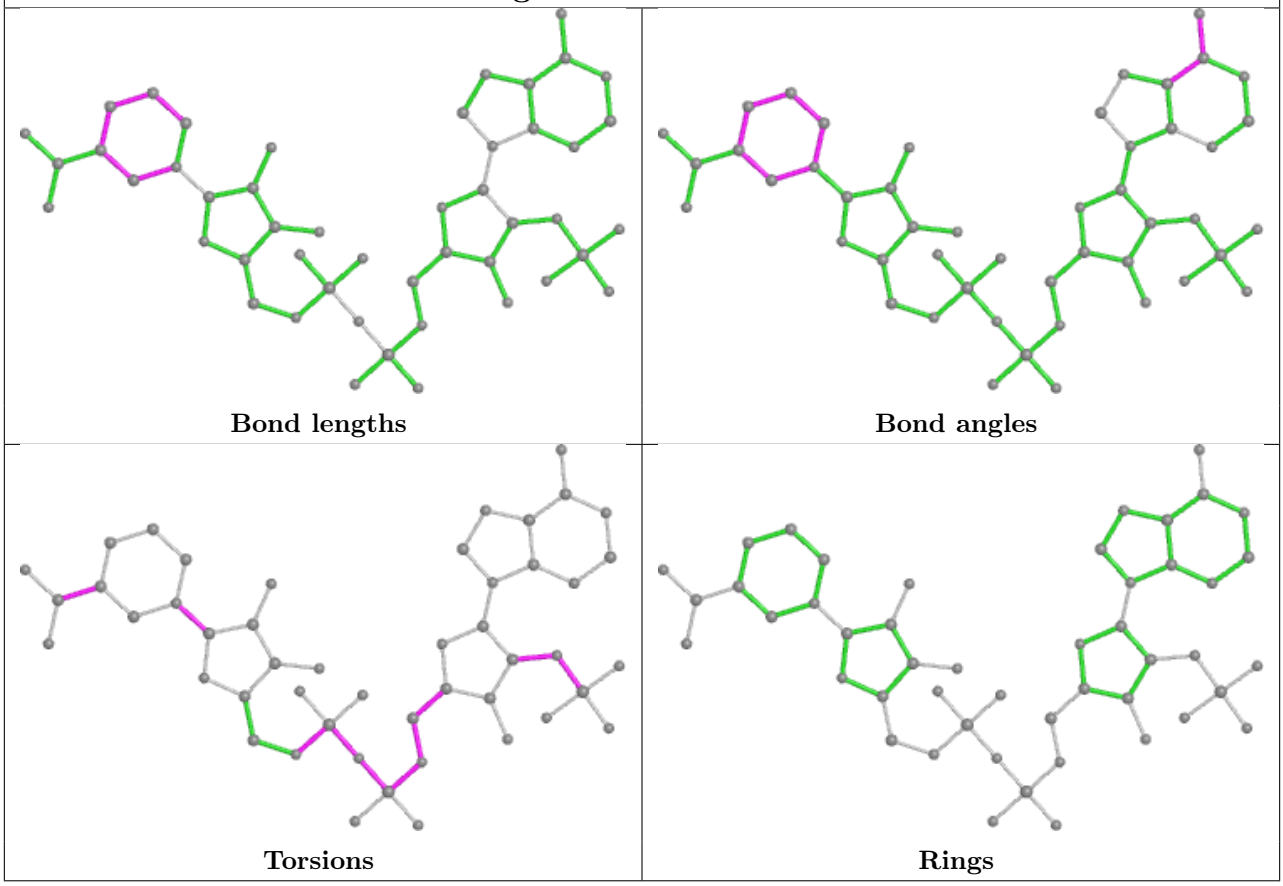


Torsions

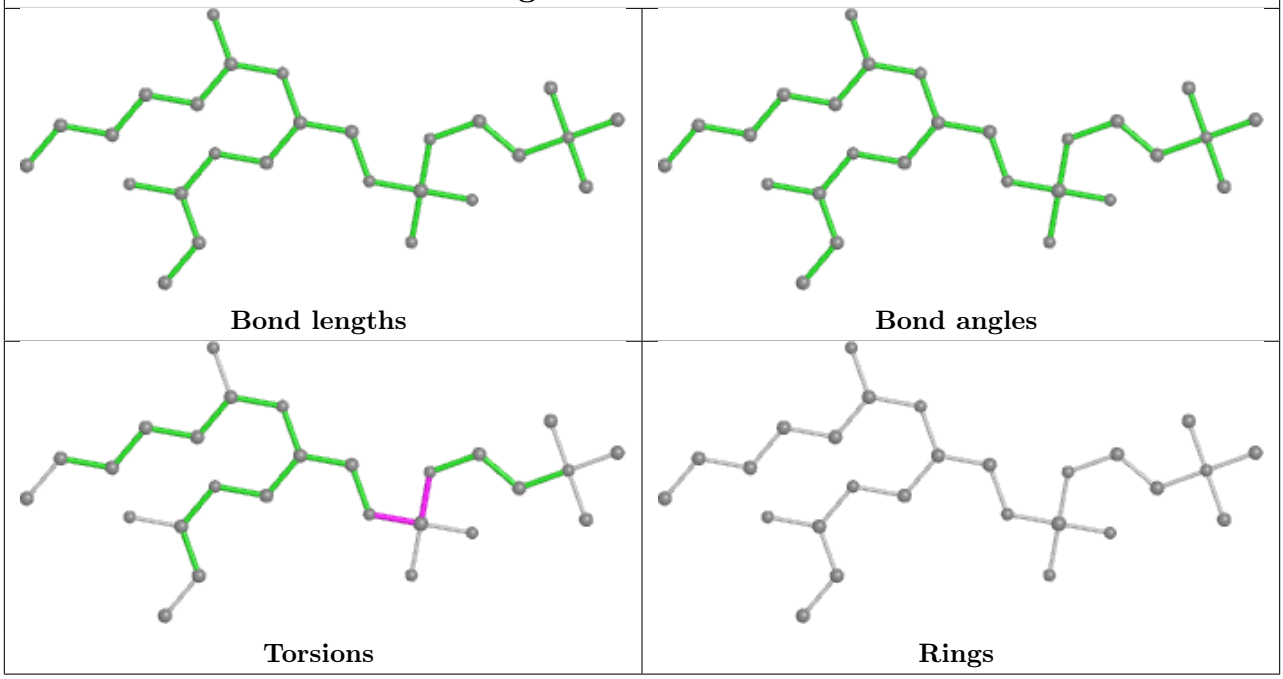


Rings

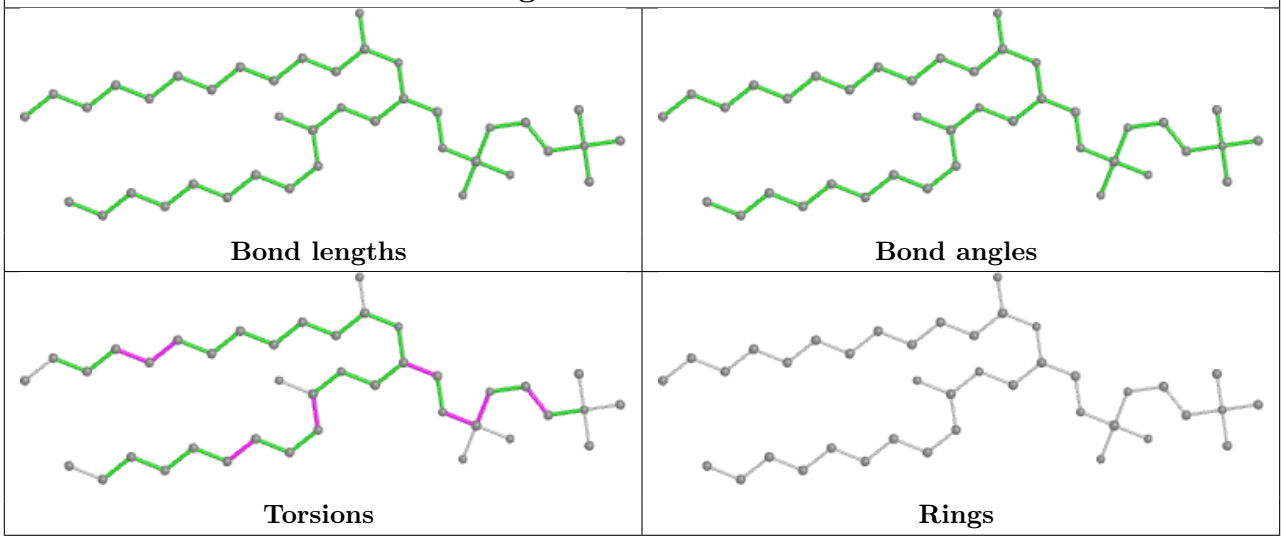
Ligand NAP A9 401



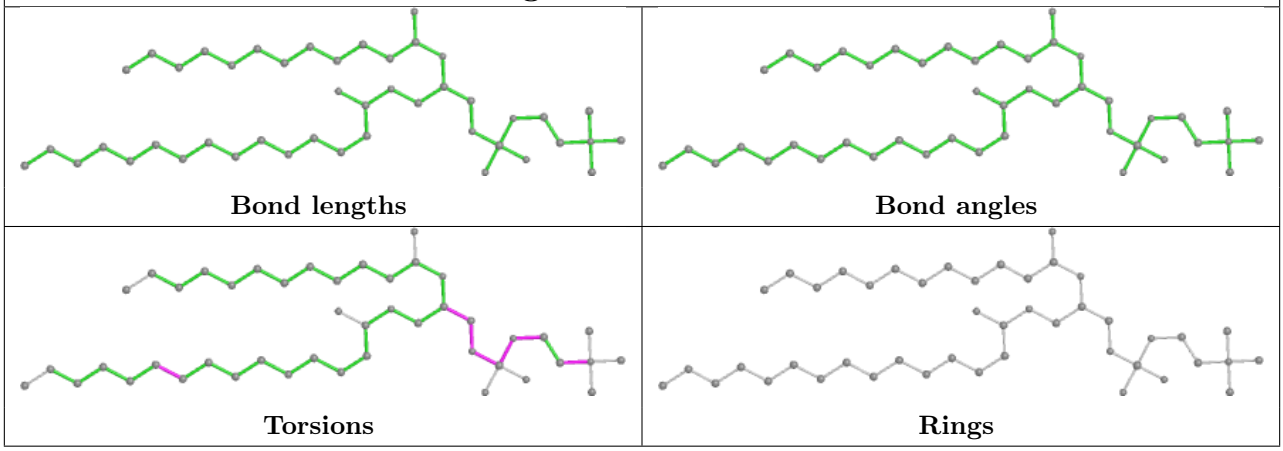
Ligand PC1 G1 701



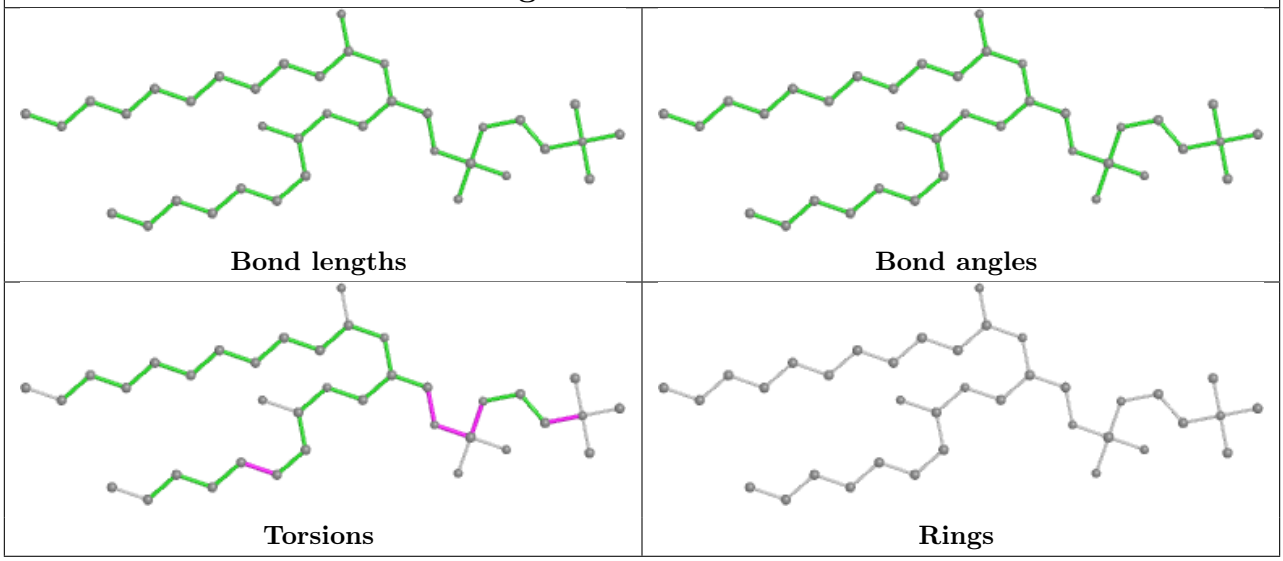
Ligand PC1 G1 702



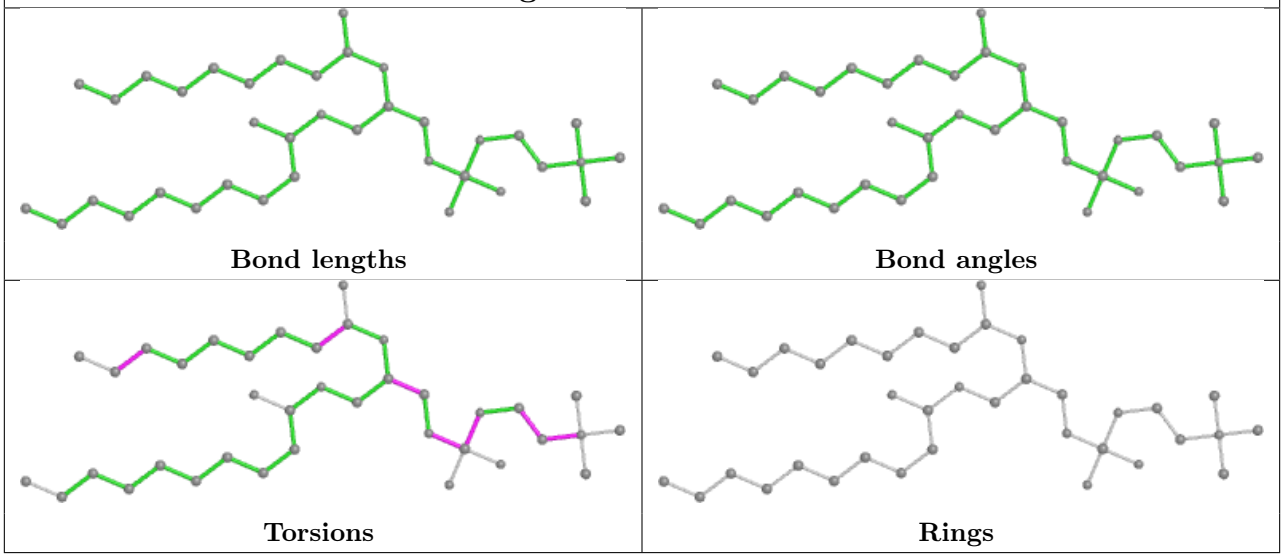
Ligand PC1 S2 401



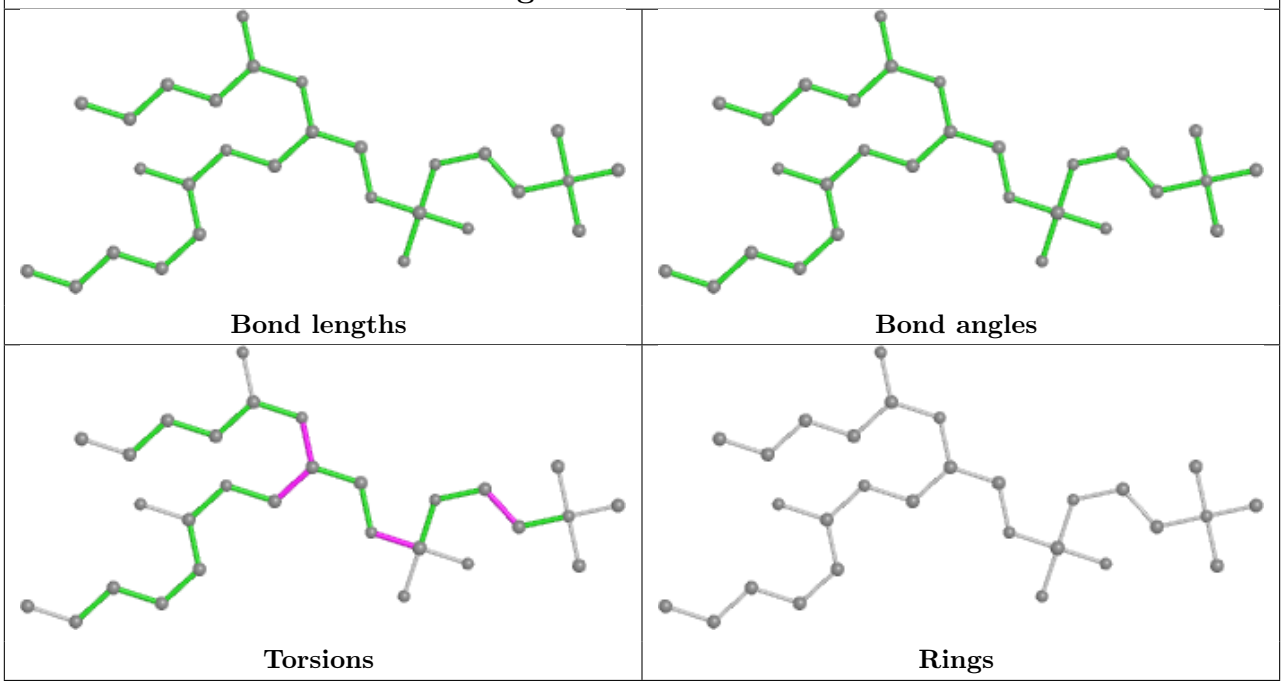
Ligand PC1 A1 101



Ligand PC1 C2 101



Ligand PC1 AL 401



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
27	C	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	C	20:UNK	C	21:UNK	N	3.16

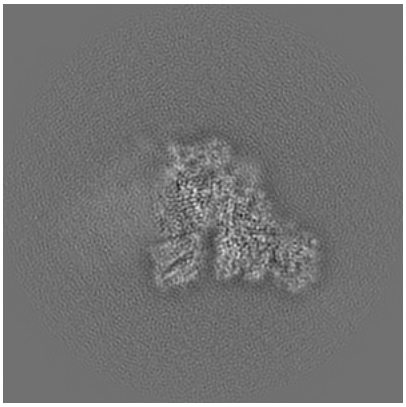
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-22090. These allow visual inspection of the internal detail of the map and identification of artifacts.

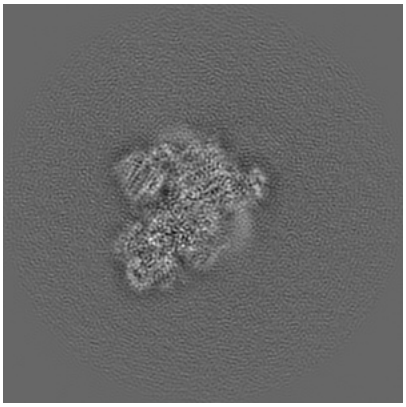
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

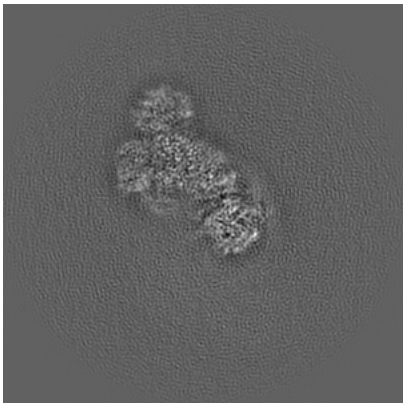
6.1.1 Primary map



X



Y

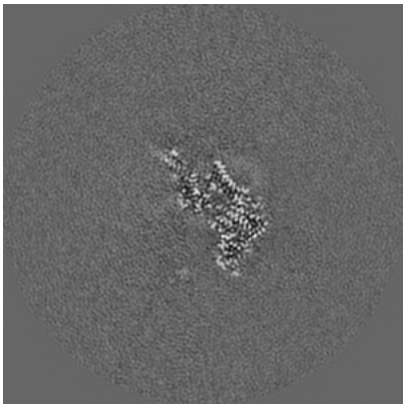


Z

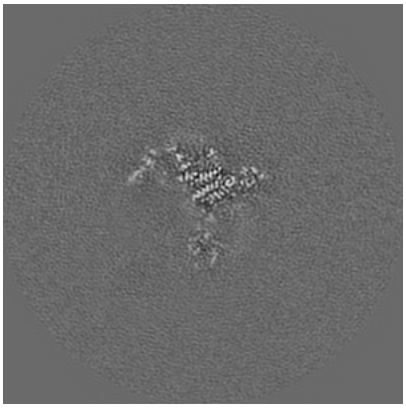
The images above show the map projected in three orthogonal directions.

6.2 Central slices

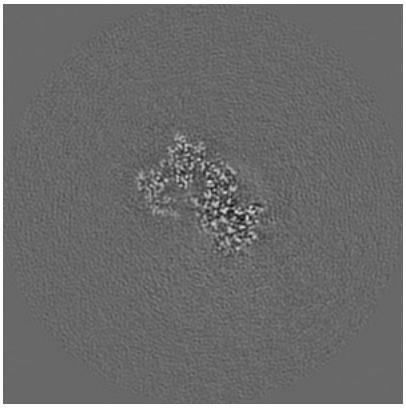
6.2.1 Primary map



X Index: 256



Y Index: 256

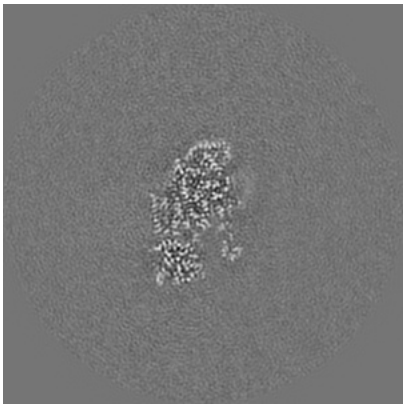


Z Index: 256

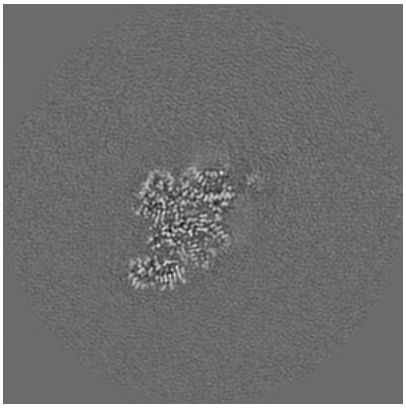
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

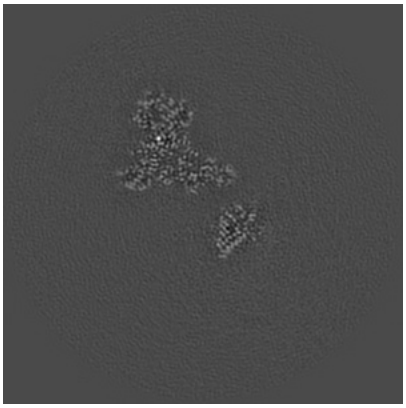
6.3.1 Primary map



X Index: 288



Y Index: 291

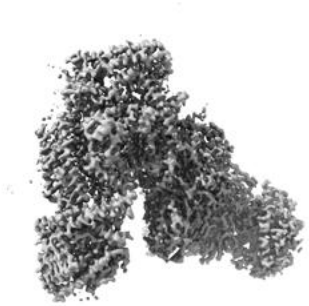


Z Index: 199

The images above show the largest variance slices of the map in three orthogonal directions.

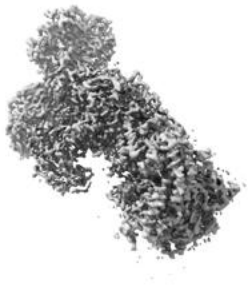
6.4 Orthogonal surface views (i)

6.4.1 Primary map



X

Y



Z

The images above show the 3D surface view of the map at the recommended contour level 6.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

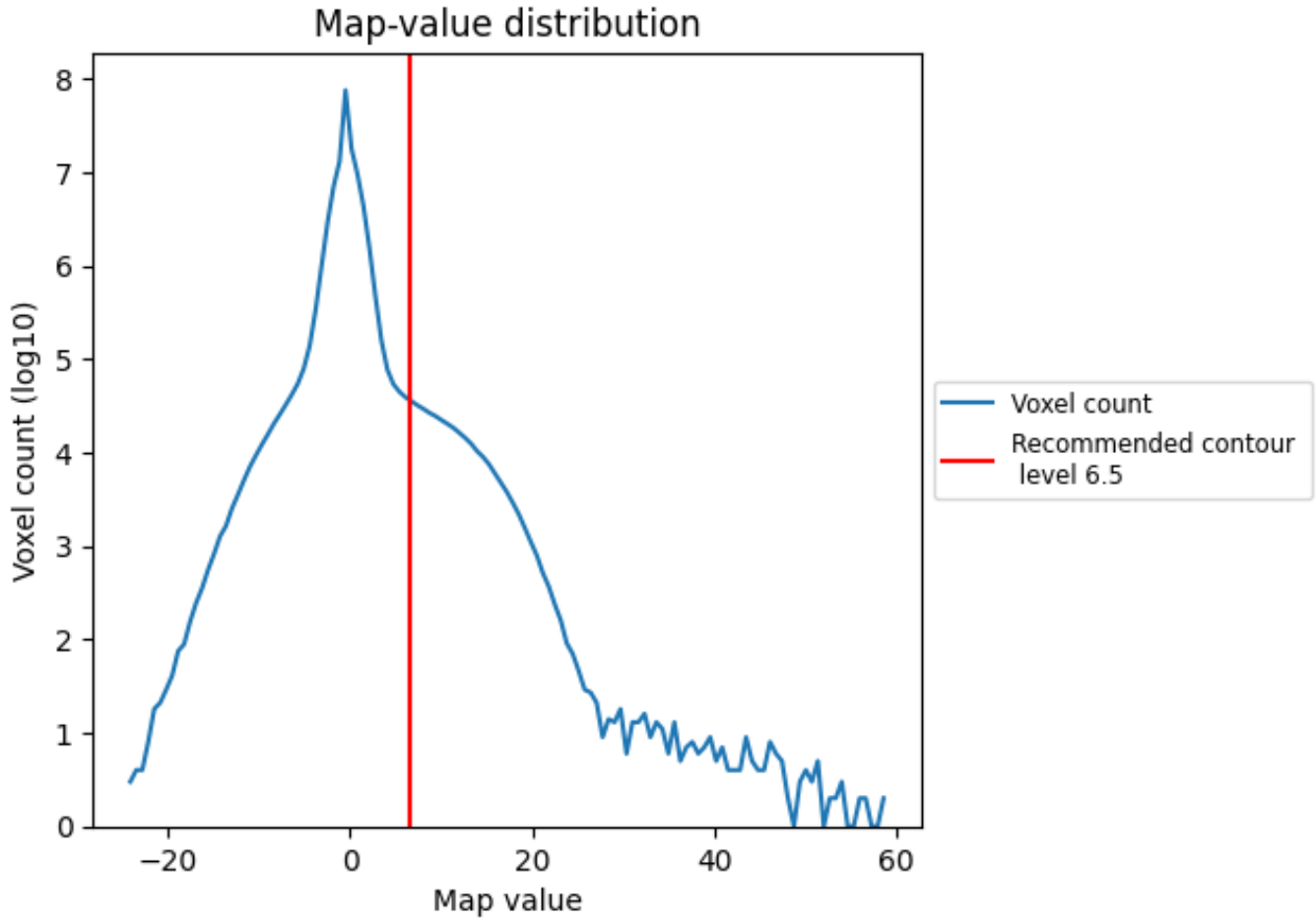
6.5 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis

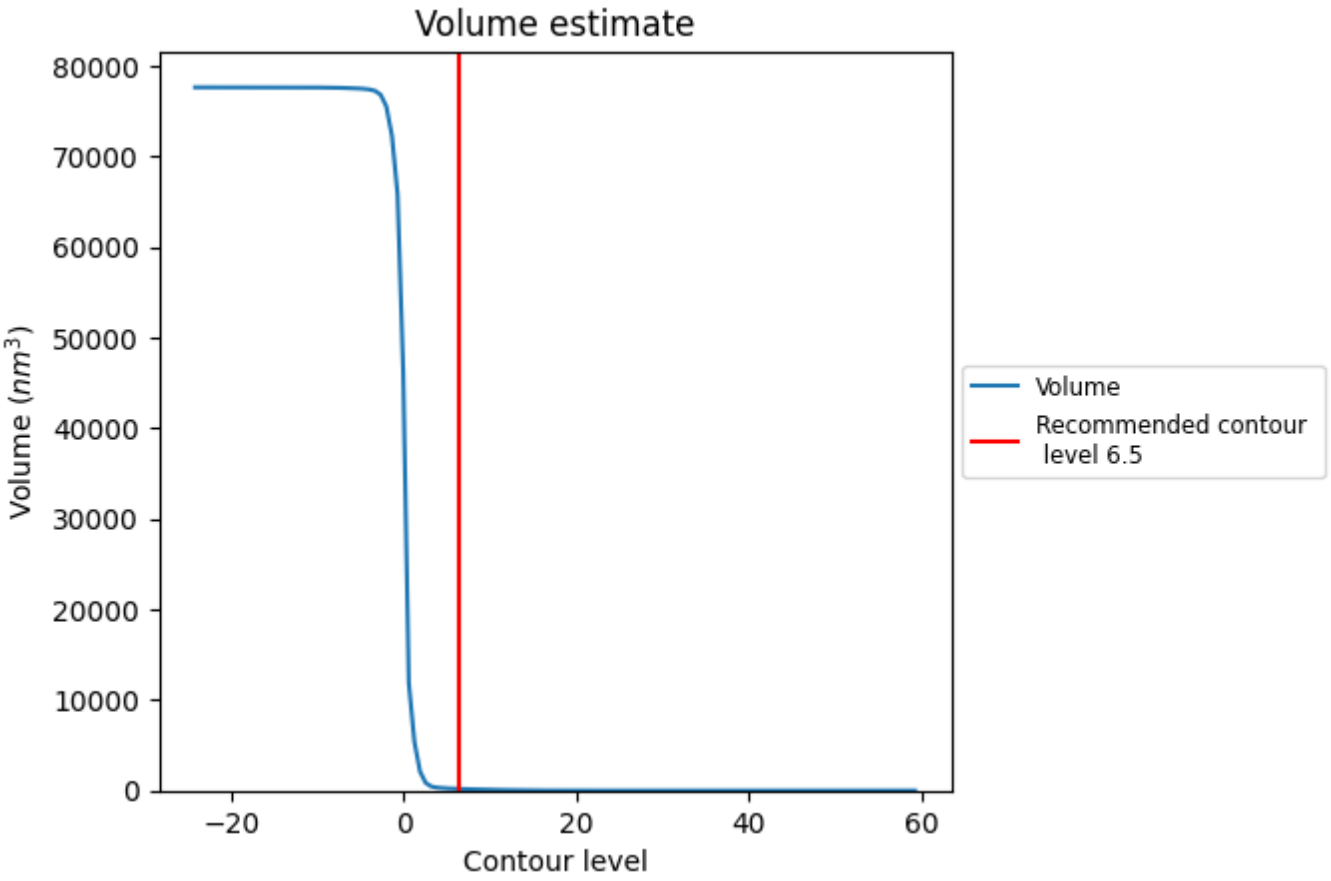
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

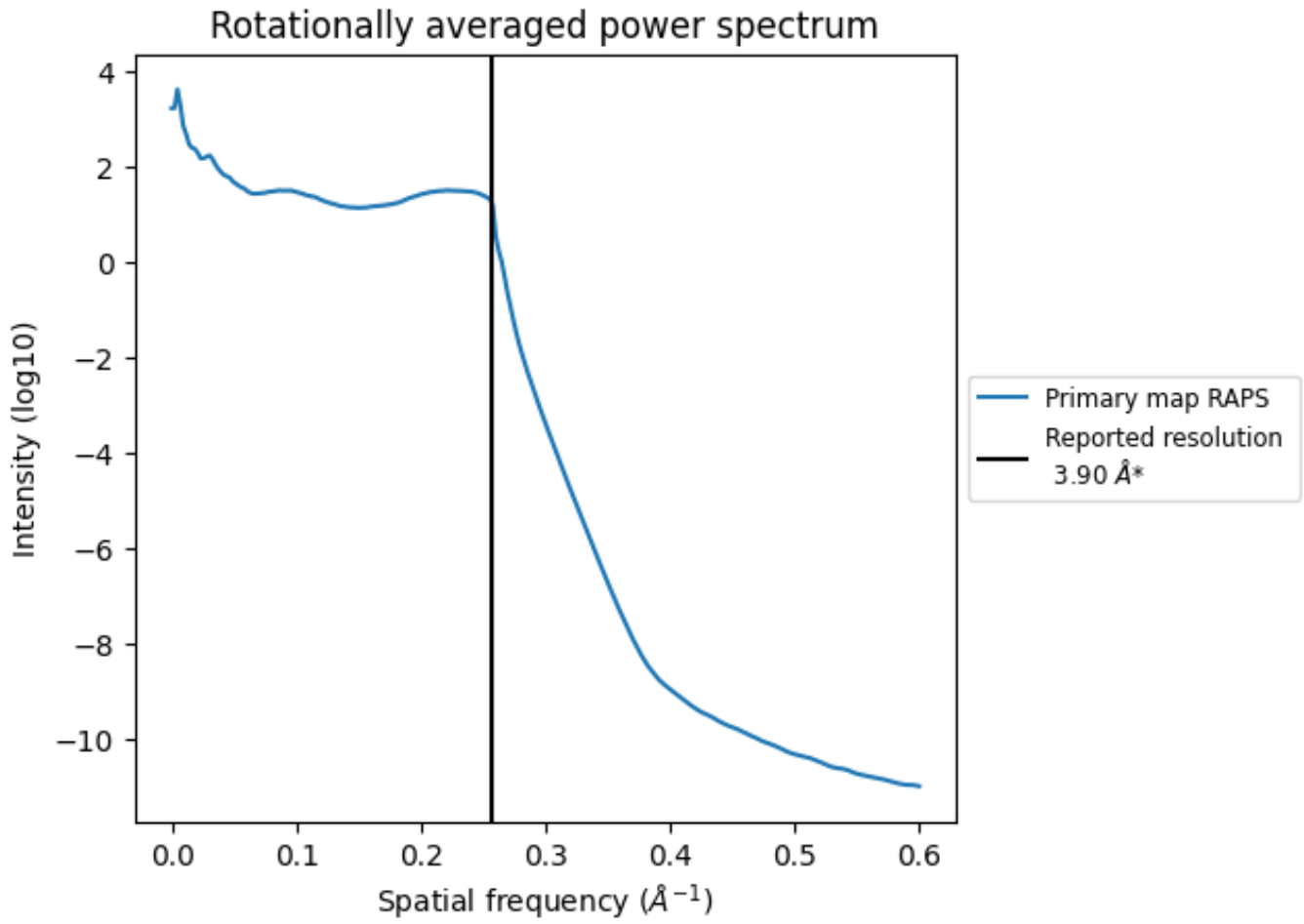
7.2 Volume estimate (i)



The volume at the recommended contour level is 183 nm^3; this corresponds to an approximate mass of 166 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.256 Å^{-1}

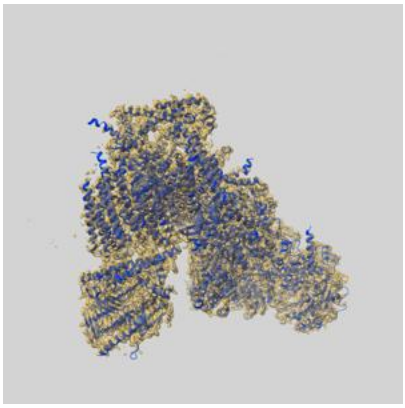
8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

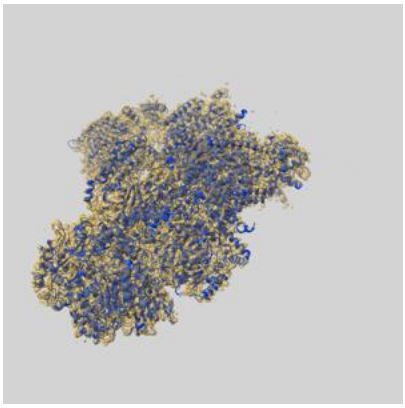
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-22090 and PDB model 6X89. Per-residue inclusion information can be found in section 3 on page 15.

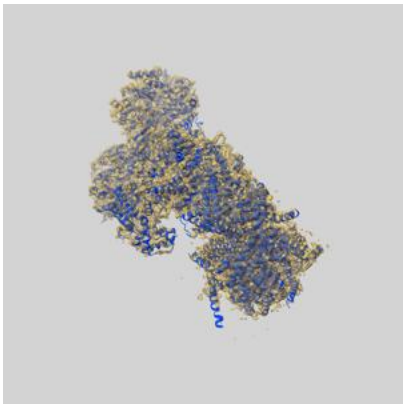
9.1 Map-model overlay



X



Y



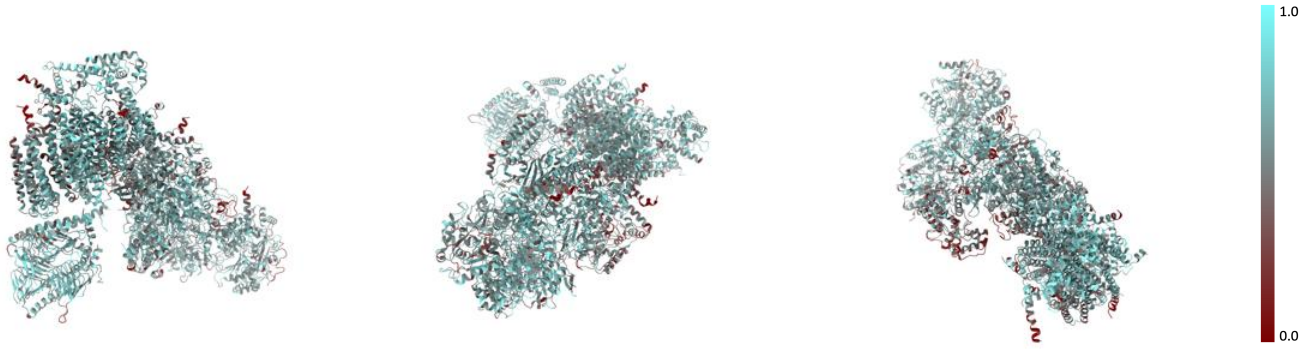
Z

The images above show the 3D surface view of the map at the recommended contour level 6.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)

This section was not generated.

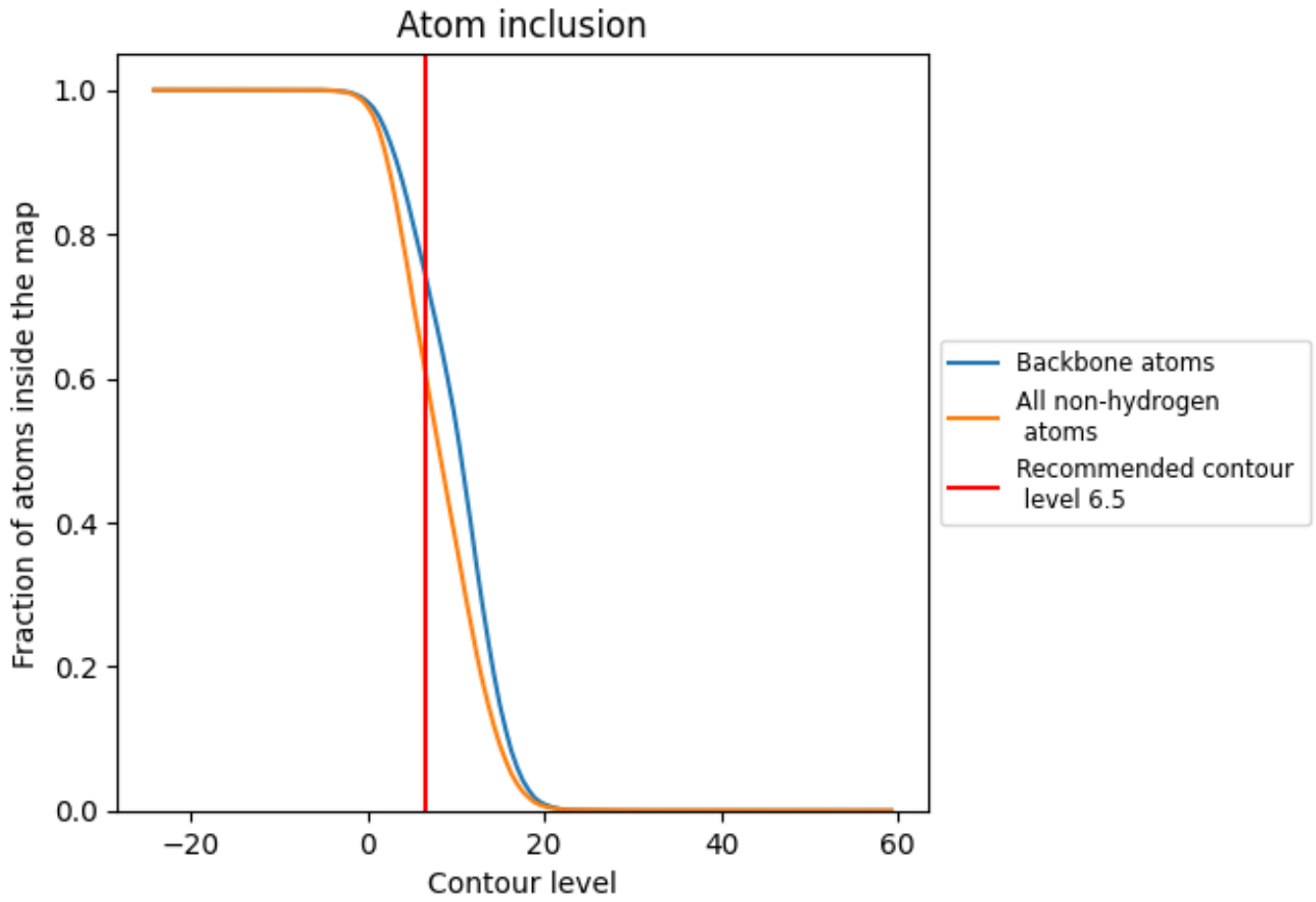
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (6.5).

9.4 Atom inclusion (i)



At the recommended contour level, 75% of all backbone atoms, 61% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (6.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion
All	0.6116
1M	0.5894
2M	0.5865
3M	0.6037
4L	0.6248
6M	0.6398
A	0.7111
A1	0.5612
A2	0.5952
A3	0.5137
A5	0.5776
A6	0.6457
A7	0.4876
A8	0.6613
A9	0.4297
AL	0.4858
AM	0.5933
B	0.6960
C	0.4791
C2	0.5882
G1	0.6608
G2	0.6572
L2	0.6868
P2	0.6699
S1	0.6452
S2	0.6629
S3	0.6581
S4	0.6848
S5	0.7058
S6	0.6607
S7	0.6408
S8	0.6420
V1	0.5993
V2	0.5972
X1	0.7143