



Full wwPDB EM Validation Report ⓘ

Oct 3, 2026 – 10:33 AM EDT

PDB ID : 9ZFT / pdb_00009zft
EMDB ID : EMD-74153
Title : Mitochondrial ATP synthase monomer from Acanthamoeba castellanii
Authors : Fry, M.Y.; Luce, B.E.; Stefely, J.A.; Samuelson, J.; Mootha, V.K.; Chao, L.H.
Deposited on : 2025-12-02
Resolution : 4.30 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:

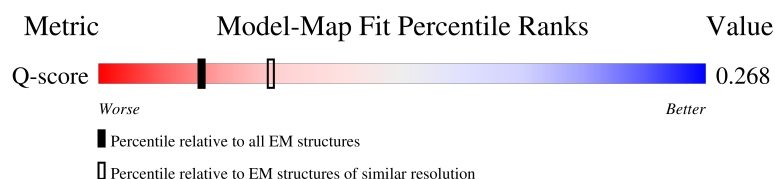
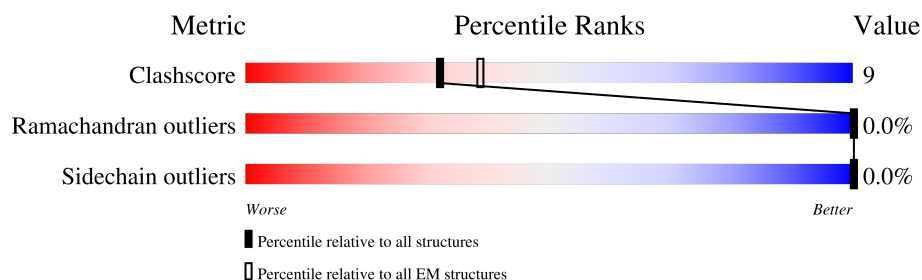
EMDB validation analysis : 0.0.1.dev133
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.2
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.51

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 4.30 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.



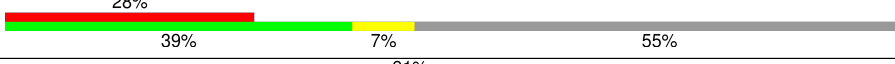
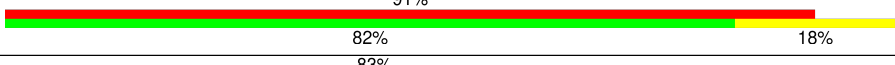
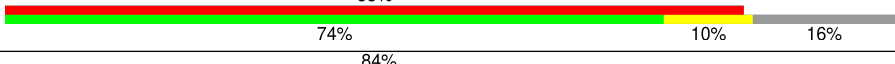
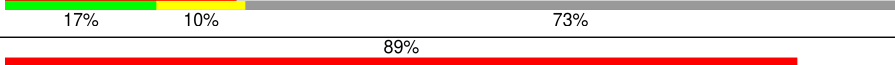
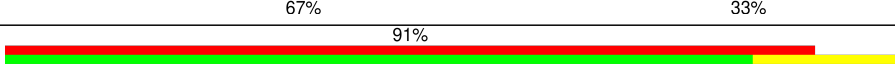
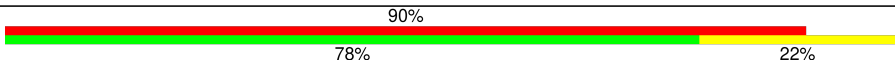
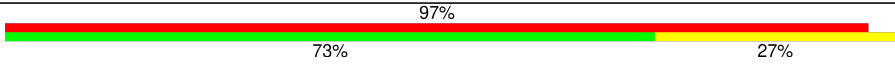
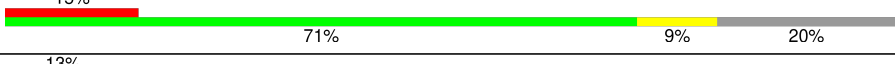
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	4585 (3.80 - 4.80)

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 $\leq 5\%$. 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	6	208	83% 75% 25%
2	8	142	75% 53% 36% 11%
3	A	326	48% 69% 17% 13%
4	B	124	73% 66% 31% .

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Mol	Chain	Length	Quality of chain
5	C	191	
6	D	499	
7	E	137	
8	G	431	
9	H	45	
10	I	454	
10	L	454	
11	J	92	
12	K	94	
13	M	92	
14	P	79	
14	Q	79	
14	R	79	
14	S	79	
14	T	79	
14	U	79	
14	V	79	
14	W	79	
14	X	79	
15	Z	142	
16	a	522	
16	b	522	
16	c	522	
17	d	687	
17	e	687	

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Mol	Chain	Length	Quality of chain
17	f	687	11% 70% 15% 15%
18	1	71	96% 97%
19	2	132	81% 92% 8%
20	3	9	100% 100%
21	5	19	100% 100%

2 Entry composition [i](#)

There are 24 unique types of molecules in this entry. The entry contains 99152 atoms, of which 50017 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 ATP synthase subunit a.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	6	208	Total	C	H	N	O	S	0	0
			3516	1199	1791	248	275	3		

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
6	?	-	PHE	deletion	UNP Q37385
6	?	-	ASN	deletion	UNP Q37385
6	?	-	LEU	deletion	UNP Q37385
6	?	-	PHE	deletion	UNP Q37385
6	?	-	VAL	deletion	UNP Q37385
6	?	-	PRO	deletion	UNP Q37385
6	?	-	SER	deletion	UNP Q37385
6	?	-	GLY	deletion	UNP Q37385
6	?	-	VAL	deletion	UNP Q37385
6	?	-	PRO	deletion	UNP Q37385
6	?	-	LYS	deletion	UNP Q37385

- Molecule 2 is a protein called ORFB.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	8	126	Total	C	H	N	O	S	0	0
			2207	750	1109	167	180	1		

- Molecule 3 is a protein called F-ATPase gamma subunit,ATP synthase gamma subunit, mitochondrial.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	A	282	Total	C	H	N	O	S	0	0
			4377	1377	2192	378	425	5		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	21	LEU	-	insertion	UNP L8GG83
A	22	ARG	-	insertion	UNP L8GG83
A	23	LEU	CYS	conflict	UNP L8GG83
A	24	ARG	LYS	conflict	UNP L8GG83

- Molecule 4 is a protein called ORF25.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	B	121	Total	C	H	N	O	S	0	0
			2051	675	1059	147	169	1		

- Molecule 5 is a protein called ATP synthase, Delta/Epsilon chain, betasandwich domain containing protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	C	154	Total	C	H	N	O	S	0	0
			2308	729	1153	192	229	5		

- Molecule 6 is a protein called ATP synthase subunit d, mitochondrial.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	D	129	Total	C	H	N	O	S	0	0
			2075	674	998	179	221	3		

- Molecule 7 is a protein called ATP synthase inhibitory factor 1 (IF1).

Mol	Chain	Residues	Atoms						AltConf	Trace
7	E	27	Total	C	H	N	O		0	0
			463	137	238	47	41			

- Molecule 8 is a protein called ATP synthase OSCP, mitochondrial.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	G	196	Total	C	H	N	O	S	0	0
			3202	1022	1619	272	284	5		

- Molecule 9 is a protein called ATP synthase subunit epsilon, mitochondrial, putative.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	H	45	Total	C	H	N	O	S	0	0
			707	216	357	67	66	1		

- Molecule 10 is a protein called malate dehydrogenase.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	I	382	Total	C	H	N	O	S	0	0
			5828	1824	2924	514	552	14		
10	L	398	Total	C	H	N	O	S	0	0
			6050	1891	3035	534	576	14		

There are 82 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	217	VAL	SER	conflict	UNP L8HFT9
I	218	GLN	ARG	conflict	UNP L8HFT9
I	219	GLY	ALA	conflict	UNP L8HFT9
I	220	LYS	-	insertion	UNP L8HFT9
I	221	ALA	-	insertion	UNP L8HFT9
I	222	LEU	-	insertion	UNP L8HFT9
I	223	ASN	-	insertion	UNP L8HFT9
I	224	LYS	-	insertion	UNP L8HFT9
I	225	VAL	-	insertion	UNP L8HFT9
I	226	ALA	-	insertion	UNP L8HFT9
I	227	ASN	-	insertion	UNP L8HFT9
I	228	ARG	-	insertion	UNP L8HFT9
I	229	ASP	-	insertion	UNP L8HFT9
I	230	THR	-	insertion	UNP L8HFT9
I	231	LEU	-	insertion	UNP L8HFT9
I	232	ARG	-	insertion	UNP L8HFT9
I	233	VAL	-	insertion	UNP L8HFT9
I	234	CYS	-	insertion	UNP L8HFT9
I	235	VAL	-	insertion	UNP L8HFT9
I	236	VAL	-	insertion	UNP L8HFT9
I	237	GLY	-	insertion	UNP L8HFT9
I	238	ASN	-	insertion	UNP L8HFT9
I	239	PRO	-	insertion	UNP L8HFT9
I	240	ALA	-	insertion	UNP L8HFT9
I	241	ASN	-	insertion	UNP L8HFT9
I	242	THR	-	insertion	UNP L8HFT9
I	243	ASN	-	insertion	UNP L8HFT9
I	244	ALA	-	insertion	UNP L8HFT9
I	245	LEU	-	insertion	UNP L8HFT9
I	246	ILE	-	insertion	UNP L8HFT9
I	247	ALA	-	insertion	UNP L8HFT9
I	248	SER	-	insertion	UNP L8HFT9
I	249	ALA	-	insertion	UNP L8HFT9
I	250	ASN	-	insertion	UNP L8HFT9

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Chain	Residue	Modelled	Actual	Comment	Reference
I	251	ALA	-	insertion	UNP L8HFT9
I	252	PRO	-	insertion	UNP L8HFT9
I	253	ASN	-	insertion	UNP L8HFT9
I	254	ILE	-	insertion	UNP L8HFT9
I	255	HIS	-	insertion	UNP L8HFT9
I	256	PRO	-	insertion	UNP L8HFT9
I	257	ARG	-	insertion	UNP L8HFT9
L	217	VAL	SER	conflict	UNP L8HFT9
L	218	GLN	ARG	conflict	UNP L8HFT9
L	219	GLY	ALA	conflict	UNP L8HFT9
L	220	LYS	-	insertion	UNP L8HFT9
L	221	ALA	-	insertion	UNP L8HFT9
L	222	LEU	-	insertion	UNP L8HFT9
L	223	ASN	-	insertion	UNP L8HFT9
L	224	LYS	-	insertion	UNP L8HFT9
L	225	VAL	-	insertion	UNP L8HFT9
L	226	ALA	-	insertion	UNP L8HFT9
L	227	ASN	-	insertion	UNP L8HFT9
L	228	ARG	-	insertion	UNP L8HFT9
L	229	ASP	-	insertion	UNP L8HFT9
L	230	THR	-	insertion	UNP L8HFT9
L	231	LEU	-	insertion	UNP L8HFT9
L	232	ARG	-	insertion	UNP L8HFT9
L	233	VAL	-	insertion	UNP L8HFT9
L	234	CYS	-	insertion	UNP L8HFT9
L	235	VAL	-	insertion	UNP L8HFT9
L	236	VAL	-	insertion	UNP L8HFT9
L	237	GLY	-	insertion	UNP L8HFT9
L	238	ASN	-	insertion	UNP L8HFT9
L	239	PRO	-	insertion	UNP L8HFT9
L	240	ALA	-	insertion	UNP L8HFT9
L	241	ASN	-	insertion	UNP L8HFT9
L	242	THR	-	insertion	UNP L8HFT9
L	243	ASN	-	insertion	UNP L8HFT9
L	244	ALA	-	insertion	UNP L8HFT9
L	245	LEU	-	insertion	UNP L8HFT9
L	246	ILE	-	insertion	UNP L8HFT9
L	247	ALA	-	insertion	UNP L8HFT9
L	248	SER	-	insertion	UNP L8HFT9
L	249	ALA	-	insertion	UNP L8HFT9
L	250	ASN	-	insertion	UNP L8HFT9
L	251	ALA	-	insertion	UNP L8HFT9

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Chain	Residue	Modelled	Actual	Comment	Reference
L	252	PRO	-	insertion	UNP L8HFT9
L	253	ASN	-	insertion	UNP L8HFT9
L	254	ILE	-	insertion	UNP L8HFT9
L	255	HIS	-	insertion	UNP L8HFT9
L	256	PRO	-	insertion	UNP L8HFT9
L	257	ARG	-	insertion	UNP L8HFT9

- Molecule 11 is a protein called ATP synthase subunit i/j, mitochondrial.

Mol	Chain	Residues	Atoms						AltConf	Trace
11	J	31	Total	C	H	N	O	S	0	0
			517	172	265	42	37	1		

- Molecule 12 is a protein called ATP synthase subunit f, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	45	Total	C	H	N	O	0	0
			756	255	372	71	58		

- Molecule 13 is a protein called ACANB14707.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	25	Total	C	H	N	O	0	0
			391	121	195	35	40		

- Molecule 14 is a protein called ATP synthase subunit 9, mitochondrial.

Mol	Chain	Residues	Atoms						AltConf	Trace
14	P	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		
14	Q	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		
14	R	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		
14	S	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		
14	T	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		
14	U	79	Total	C	H	N	O	S	0	0
			1195	385	616	90	100	4		
14	V	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		

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Mol	Chain	Residues	Atoms						AltConf	Trace
14	W	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		
14	X	79	Total	C	H	N	O	S	0	0
			1208	385	629	90	100	4		

- Molecule 15 is a protein called ACANB04460.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	Z	142	Total	C	H	N	O	S	0	0
			2188	683	1096	187	220	2		

- Molecule 16 is a protein called ATP synthase subunit alpha, mitochondrial.

Mol	Chain	Residues	Atoms						AltConf	Trace
16	a	483	Total	C	H	N	O	S	0	0
			7539	2373	3807	637	711	11		
16	b	490	Total	C	H	N	O	S	0	0
			7648	2405	3865	645	722	11		
16	c	488	Total	C	H	N	O	S	0	0
			7622	2397	3855	642	717	11		

- Molecule 17 is a protein called ATP synthase subunit beta.

Mol	Chain	Residues	Atoms						AltConf	Trace
17	d	549	Total	C	H	N	O	S	0	0
			8495	2679	4271	718	816	11		
17	e	571	Total	C	H	N	O	S	0	0
			8840	2792	4435	745	858	10		
17	f	581	Total	C	H	N	O	S	0	0
			8993	2836	4518	760	868	11		

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
d	-10	SER	ALA	conflict	UNP L8GXZ0
d	201	GLU	-	insertion	UNP L8GXZ0
d	202	ARG	-	insertion	UNP L8GXZ0
d	203	THR	-	insertion	UNP L8GXZ0
d	204	ARG	-	insertion	UNP L8GXZ0
d	205	GLU	-	insertion	UNP L8GXZ0
d	206	GLY	-	insertion	UNP L8GXZ0
e	-10	SER	ALA	conflict	UNP L8GXZ0

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Chain	Residue	Modelled	Actual	Comment	Reference
e	201	GLU	-	insertion	UNP L8GXZ0
e	202	ARG	-	insertion	UNP L8GXZ0
e	203	THR	-	insertion	UNP L8GXZ0
e	204	ARG	-	insertion	UNP L8GXZ0
e	205	GLU	-	insertion	UNP L8GXZ0
e	206	GLY	-	insertion	UNP L8GXZ0
f	-10	SER	ALA	conflict	UNP L8GXZ0
f	201	GLU	-	insertion	UNP L8GXZ0
f	202	ARG	-	insertion	UNP L8GXZ0
f	203	THR	-	insertion	UNP L8GXZ0
f	204	ARG	-	insertion	UNP L8GXZ0
f	205	GLU	-	insertion	UNP L8GXZ0
f	206	GLY	-	insertion	UNP L8GXZ0

- Molecule 18 is a protein called unknown protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	1	71	Total	C	H	N	O	0	0
			710	213	355	71	71		

- Molecule 19 is a protein called unknown protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	2	132	Total	C	H	N	O	0	0
			1320	396	660	132	132		

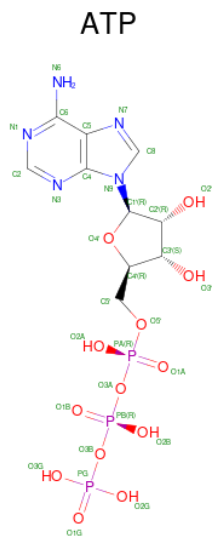
- Molecule 20 is a protein called unknown protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	3	9	Total	C	H	N	O	0	0
			90	27	45	9	9		

- Molecule 21 is a protein called unknown protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	5	19	Total	C	H	N	O	0	0
			190	57	95	19	19		

- Molecule 22 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃) (labeled as "Ligand of Interest" by depositor).

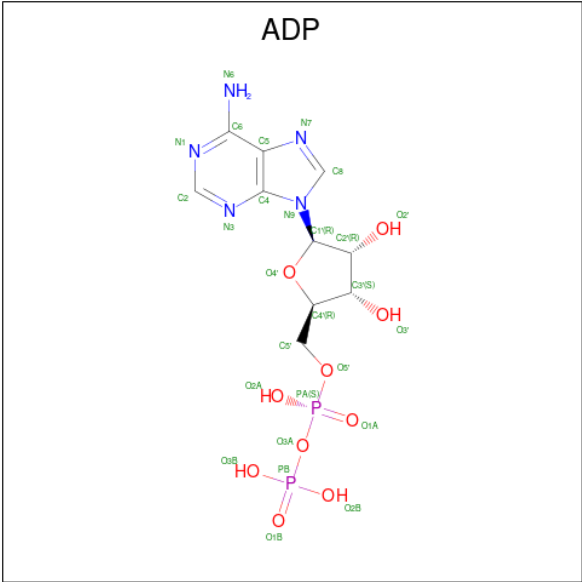


Mol	Chain	Residues	Atoms					AltConf	
22	a	1	Total 43	C 10	H 12	N 5	O 13	P 3	0
22	b	1	Total 43	C 10	H 12	N 5	O 13	P 3	0
22	c	1	Total 43	C 10	H 12	N 5	O 13	P 3	0

- Molecule 23 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	AltConf
23	b	1	Total Mg 1 1	0
23	c	1	Total Mg 1 1	0
23	f	1	Total Mg 1 1	0

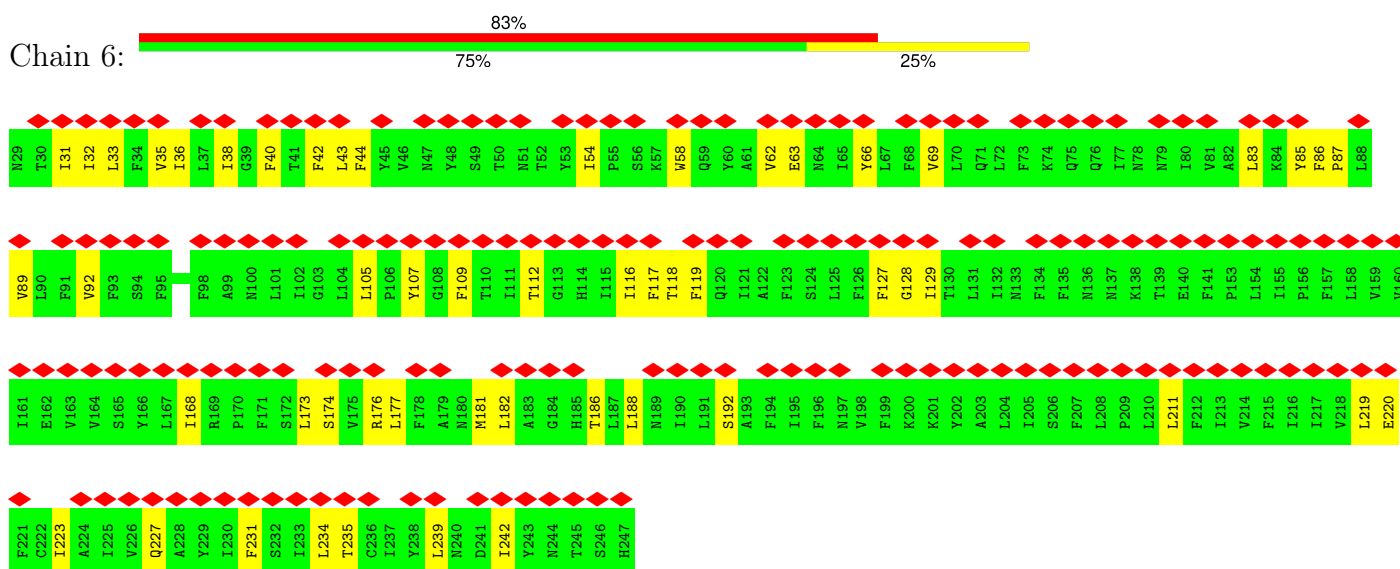
- Molecule 24 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $\text{C}_{10}\text{H}_{15}\text{N}_5\text{O}_{10}\text{P}_2$) (labeled as "Ligand of Interest" by depositor).



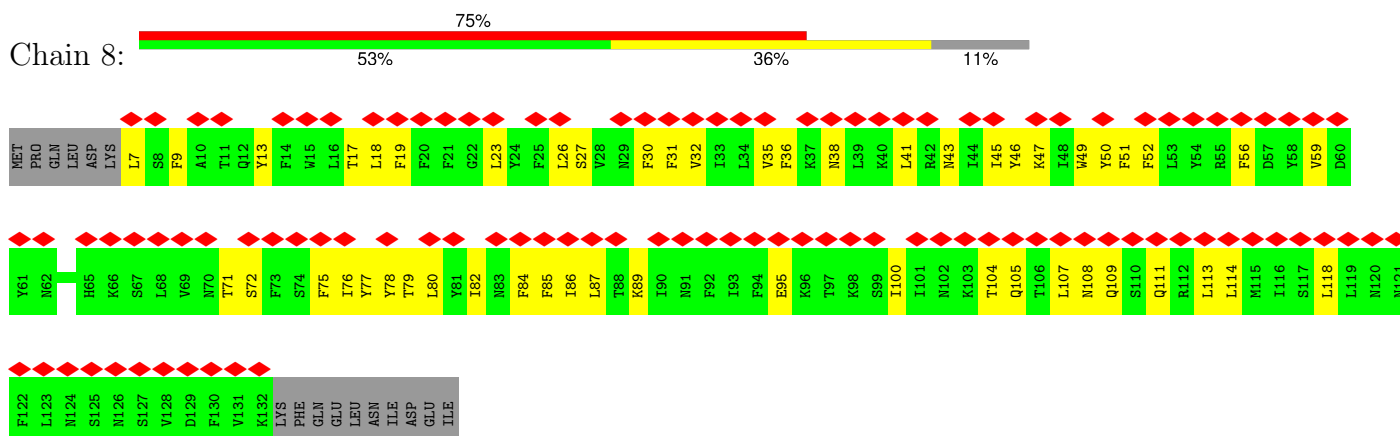
3 Residue-property plots

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: ATP synthase subunit a

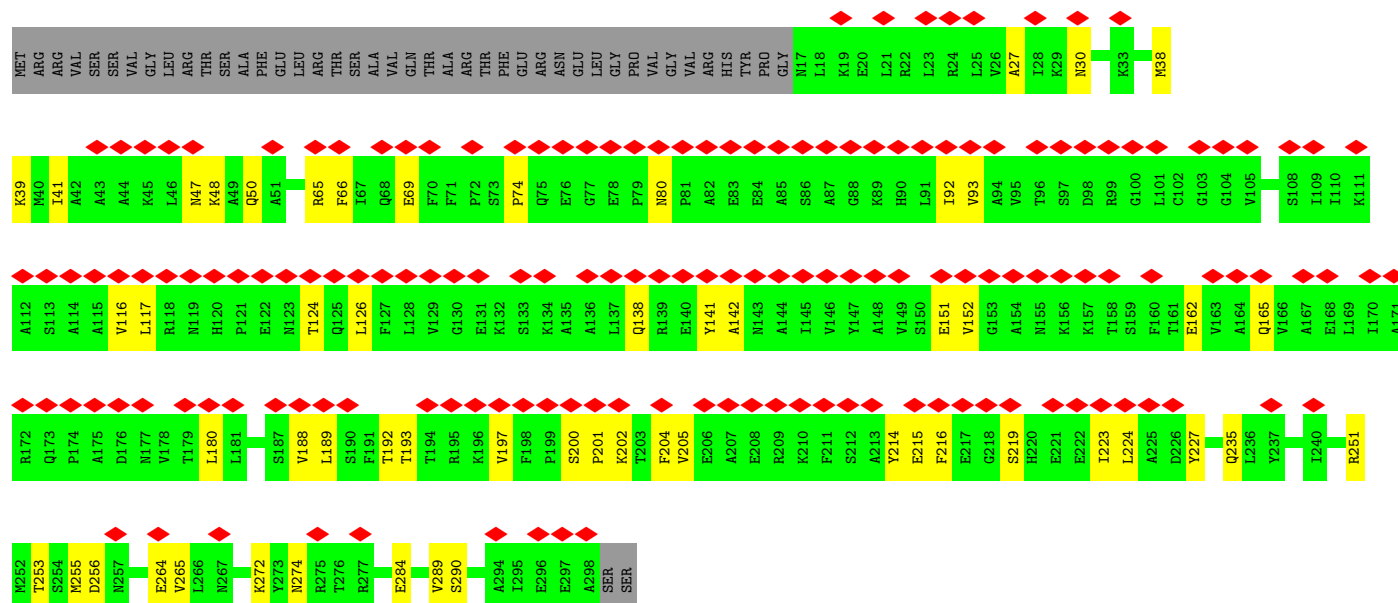


• Molecule 2: ORFB

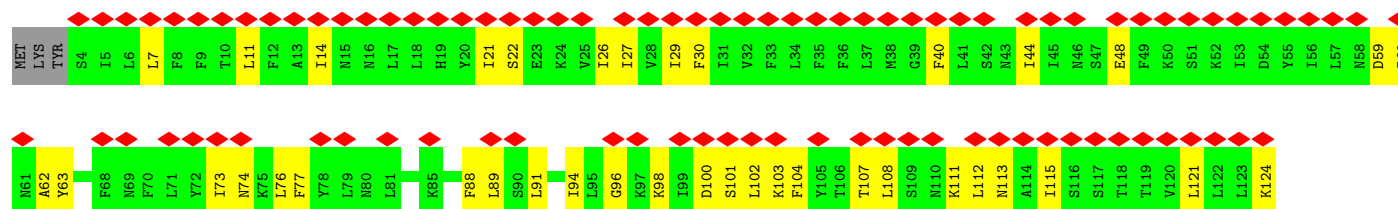
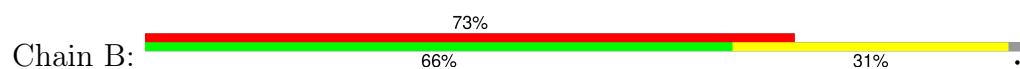


• Molecule 3: F-ATPase gamma subunit, ATP synthase gamma subunit, mitochondrial

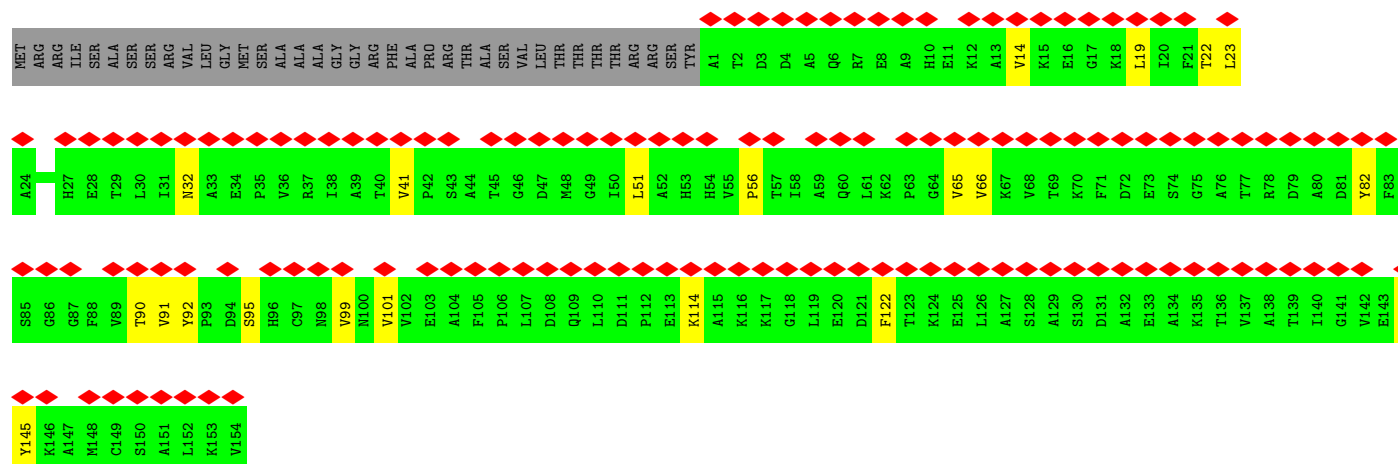
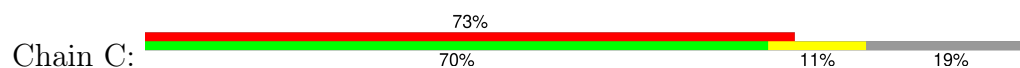




• Molecule 4: ORF25



• Molecule 5: ATP synthase, Delta/Epsilon chain, betasandwich domain containing protein



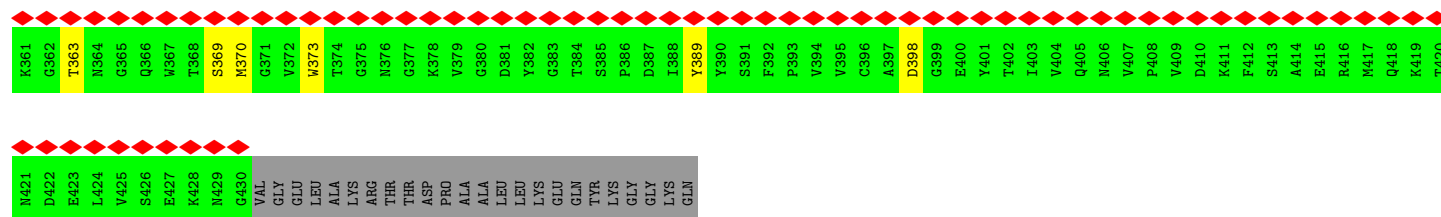
• Molecule 6: ATP synthase subunit d, mitochondrial





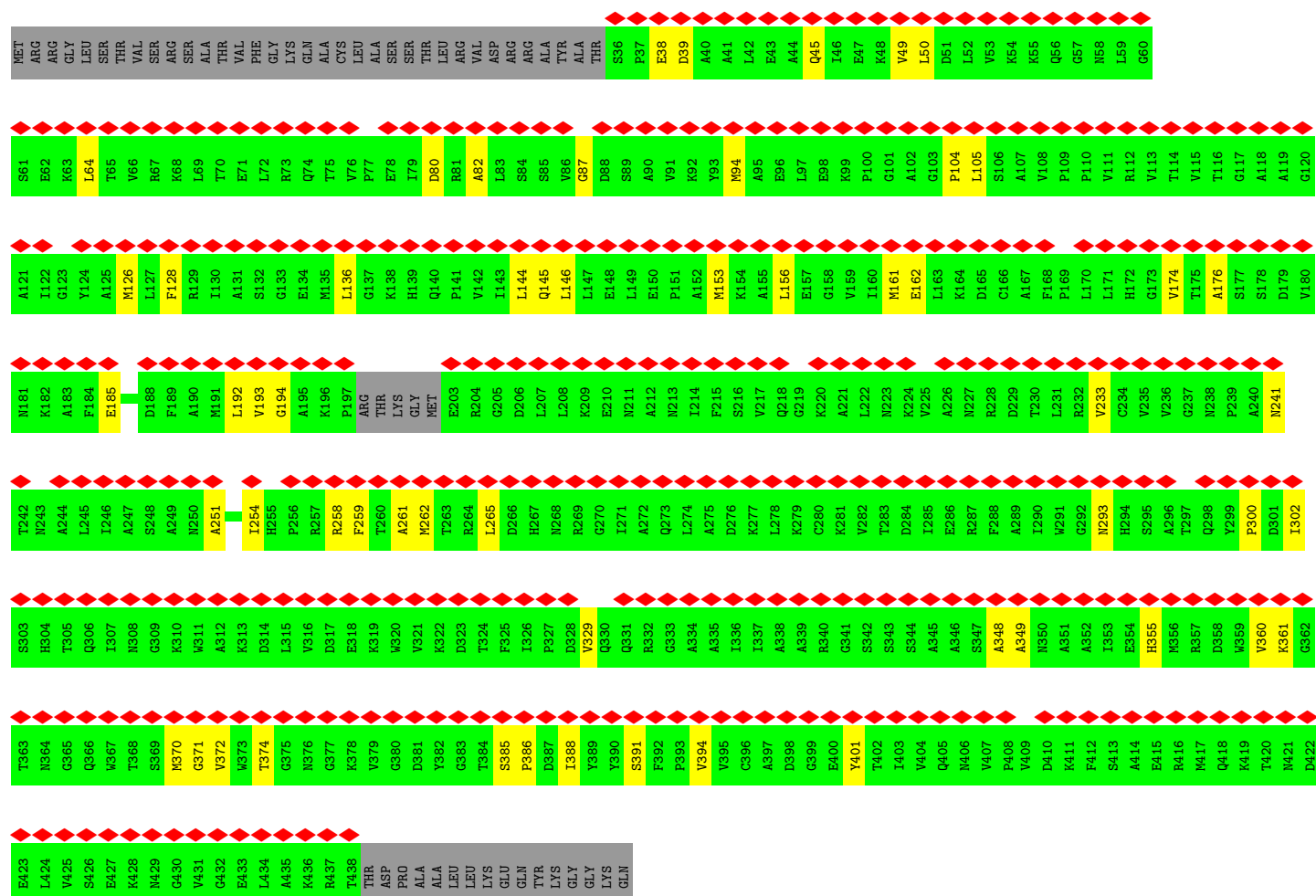
WORLD WIDE
PDB
PROTEIN DATA BANK





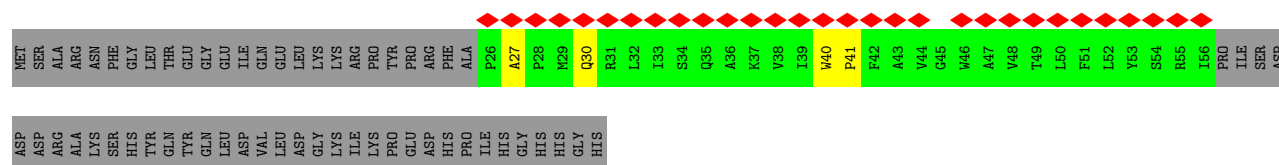
• Molecule 10: malate dehydrogenase

Chain L:

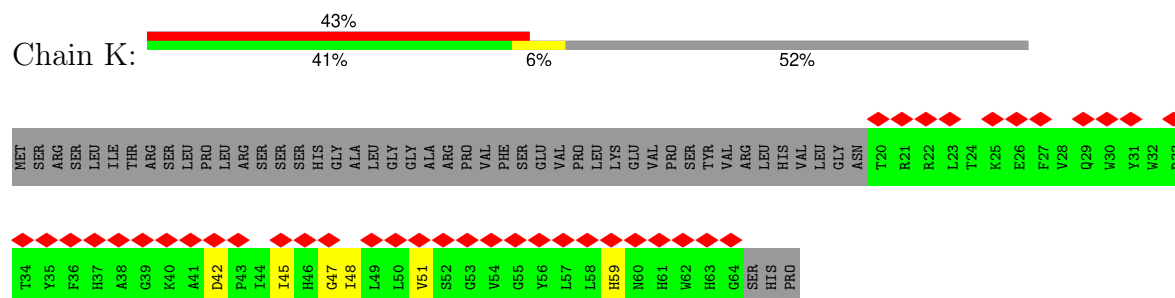


• Molecule 11: ATP synthase subunit i/j, mitochondrial

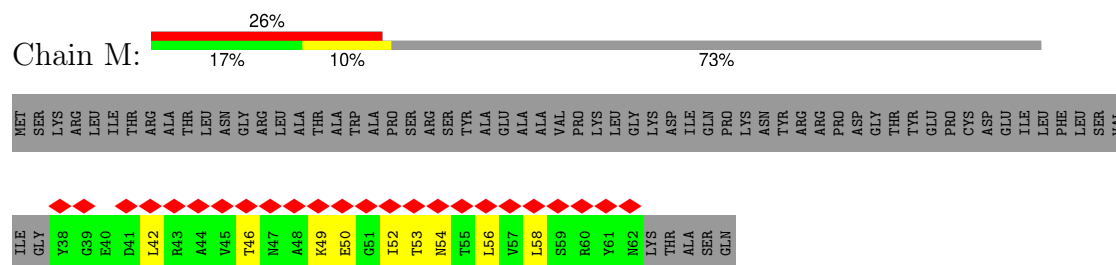
Chain J:



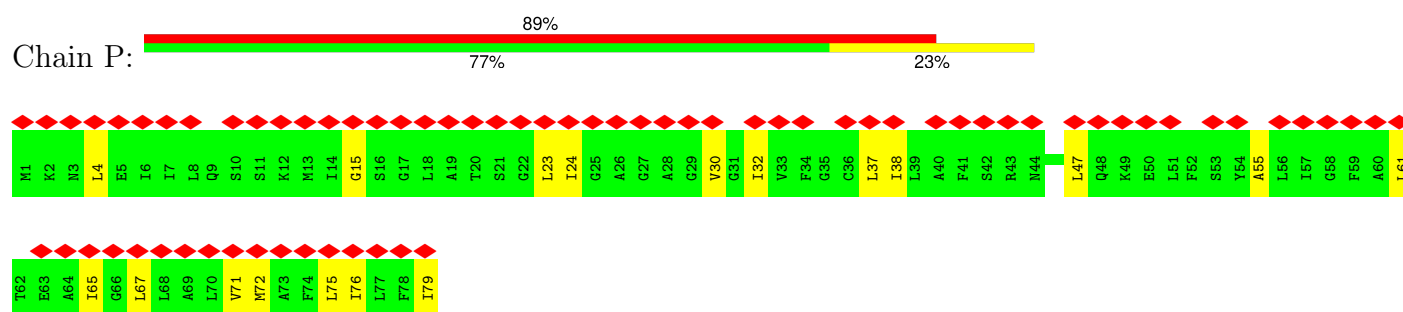
- Molecule 12: ATP synthase subunit f, mitochondrial



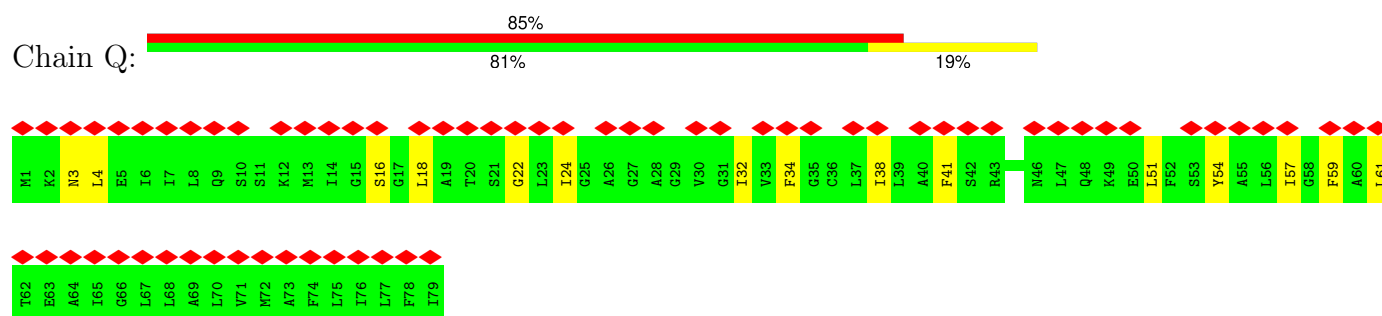
- Molecule 13: ACANB14707



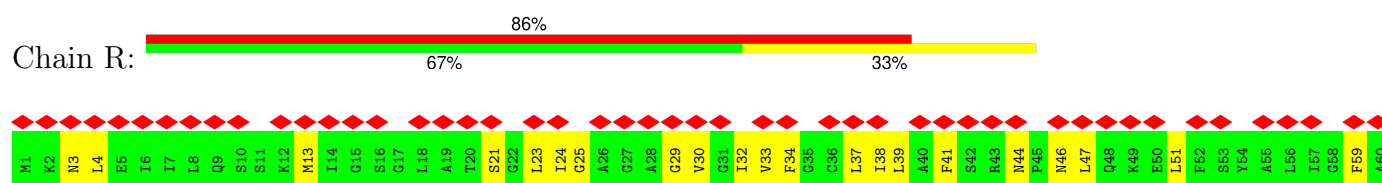
- Molecule 14: ATP synthase subunit 9, mitochondrial

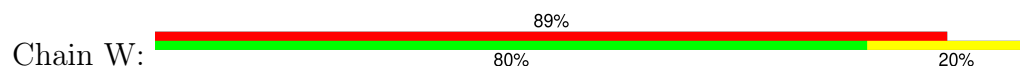


- Molecule 14: ATP synthase subunit 9, mitochondrial



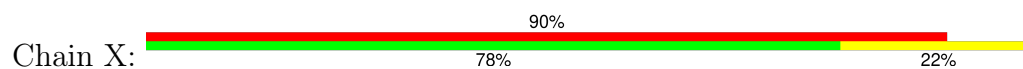
- Molecule 14: ATP synthase subunit 9, mitochondrial



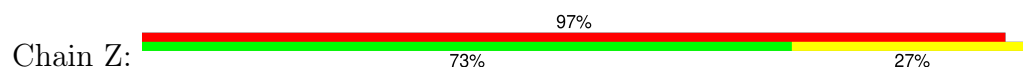




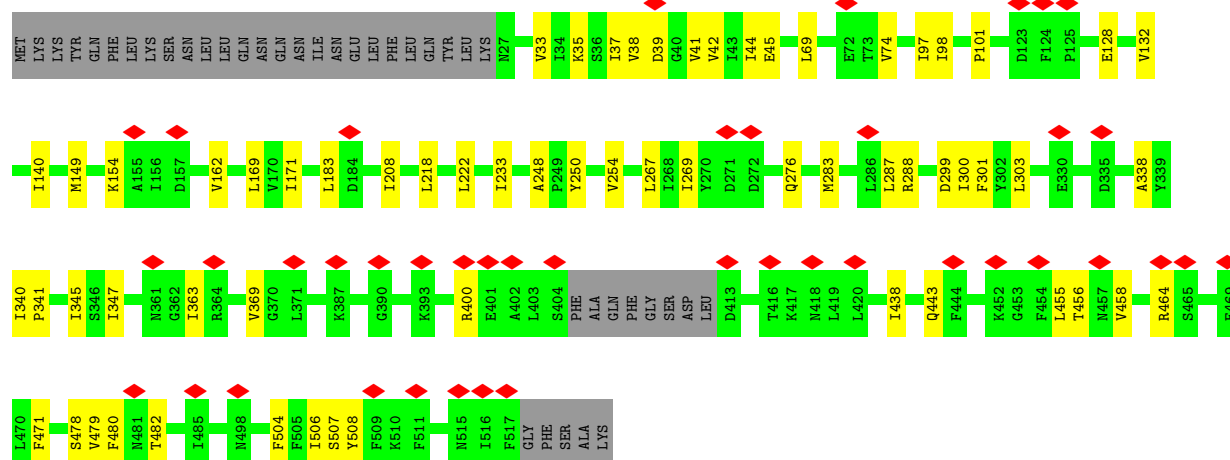
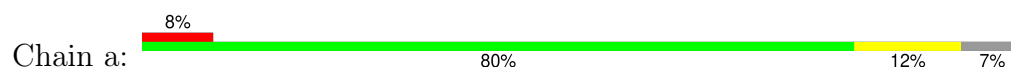
• Molecule 14: ATP synthase subunit 9, mitochondrial



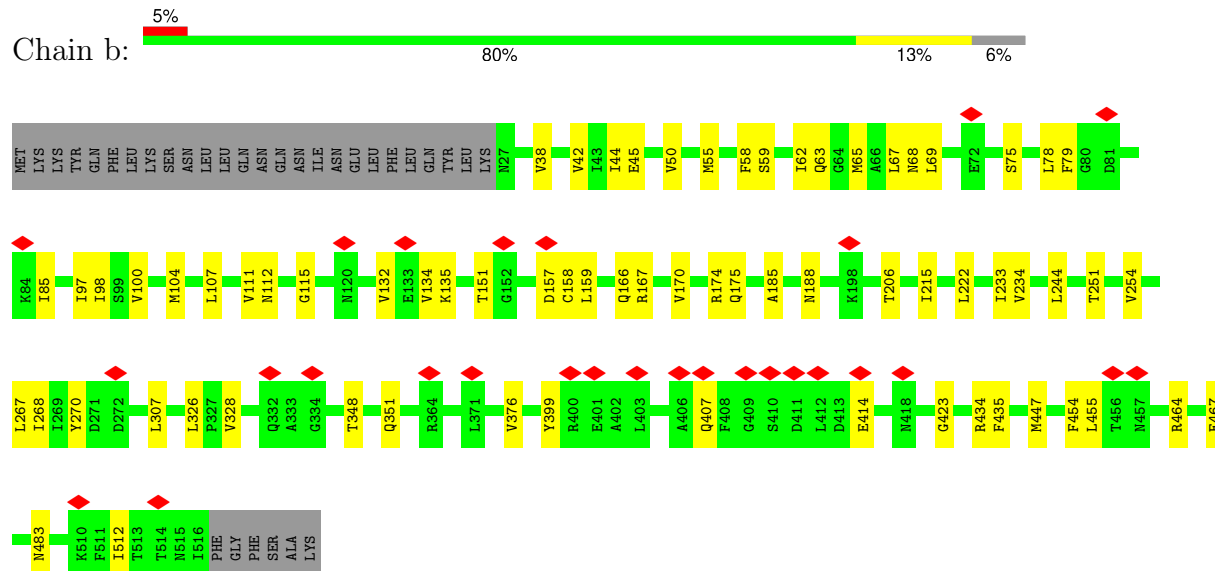
• Molecule 15: ACANB04460



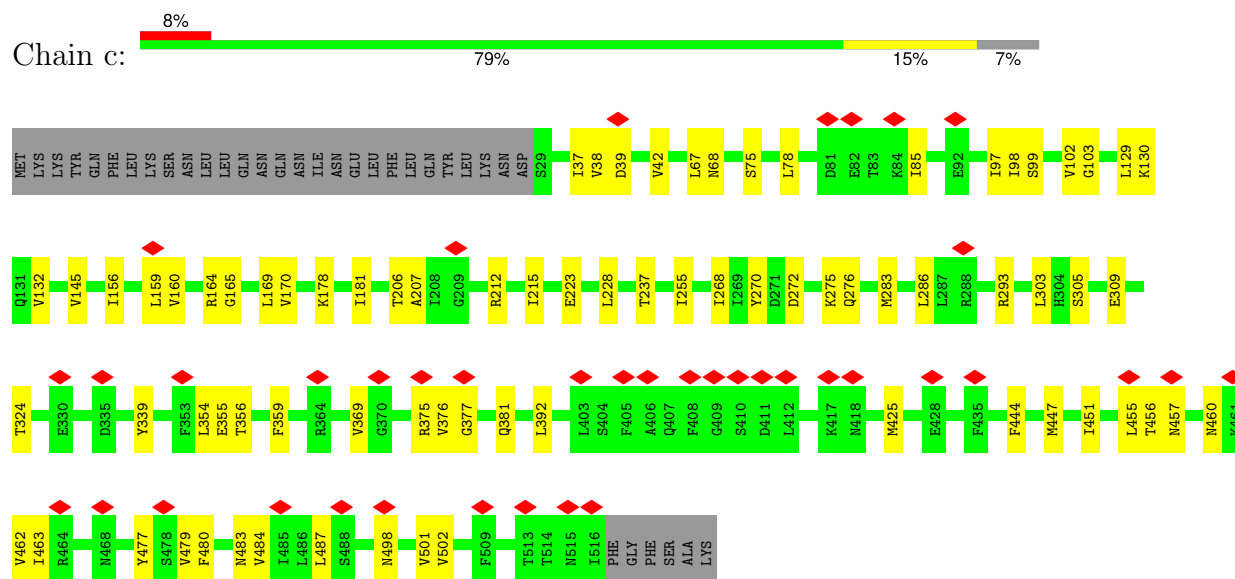
• Molecule 16: ATP synthase subunit alpha, mitochondrial



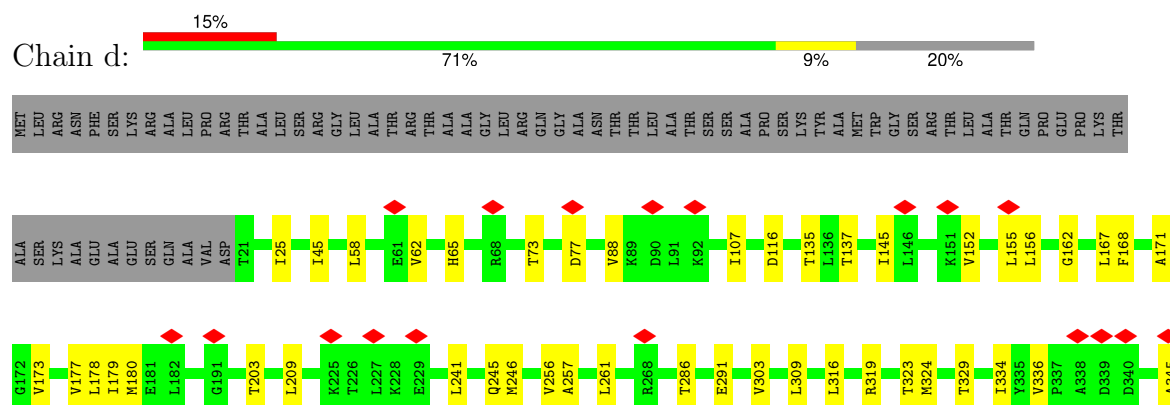
- Molecule 16: ATP synthase subunit alpha, mitochondrial

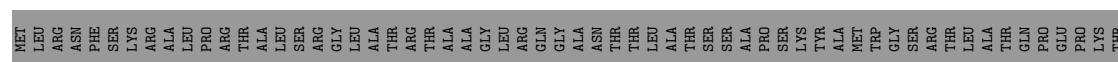


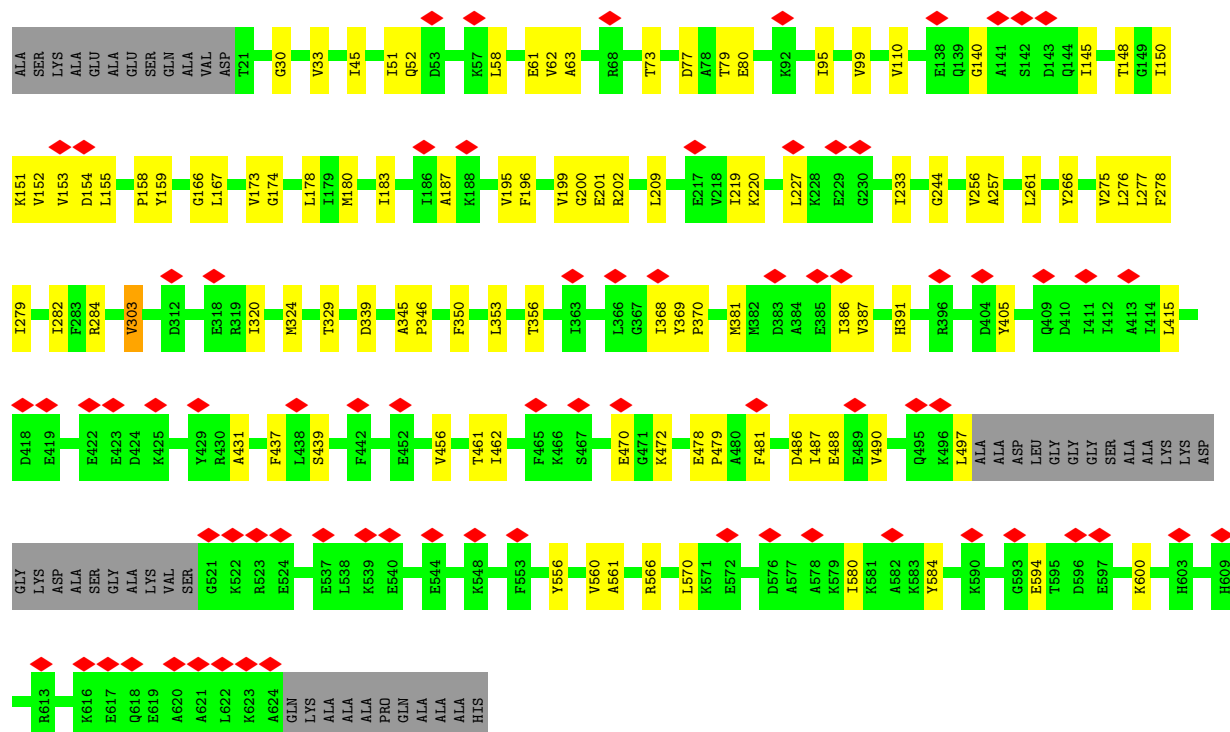
- Molecule 16: ATP synthase subunit alpha, mitochondrial



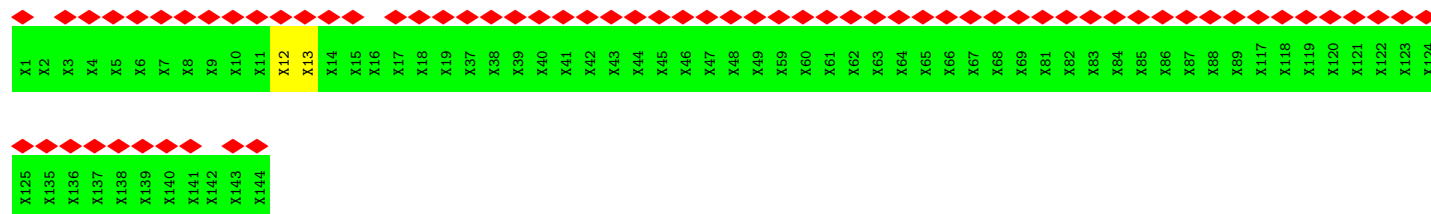
- Molecule 17: ATP synthase subunit beta



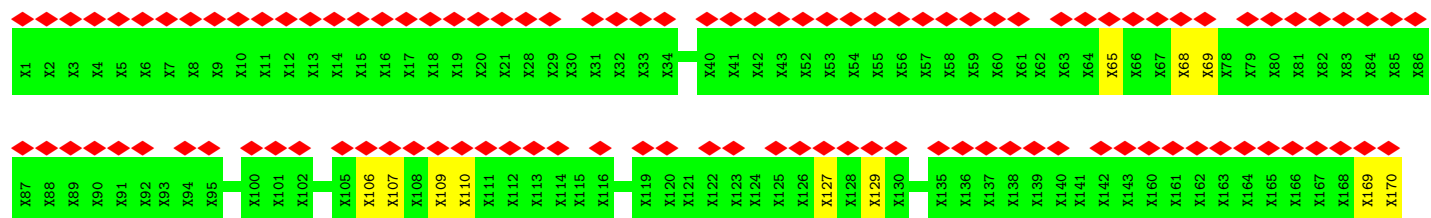
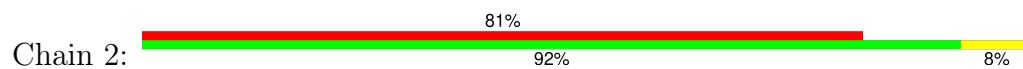




• Molecule 18: unknown protein

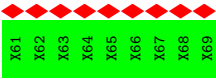


• Molecule 19: unknown protein

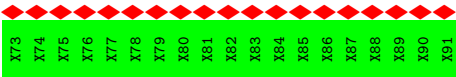


• Molecule 20: unknown protein





● Molecule 21: unknown protein



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	10863	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	0.99	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.407	Depositor
Minimum map value	-0.175	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.019	Depositor
Recommended contour level	0.111	Depositor
Map size ($\text{\AA}$)	361.68002, 361.68002, 361.68002	wwPDB
Map dimensions	440, 440, 440	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.822, 0.822, 0.822	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ADP, ATP, MG

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	$\# Z > 5$
1	6	0.19	0/1778	0.34	0/2423
2	8	0.24	0/1131	0.45	0/1530
3	A	0.16	0/2220	0.34	0/3004
4	B	0.24	0/1012	0.41	0/1366
5	C	0.14	0/1176	0.34	0/1596
6	D	0.26	0/1100	0.41	0/1487
7	E	0.13	0/225	0.21	0/296
8	G	0.16	0/1616	0.29	0/2179
9	H	0.13	0/354	0.30	0/470
10	I	0.14	0/2952	0.26	0/3995
10	L	0.17	0/3067	0.28	0/4154
11	J	0.13	0/261	0.29	0/356
12	K	0.15	0/400	0.27	0/544
13	M	0.23	0/197	0.45	0/266
14	P	0.15	0/586	0.28	0/787
14	Q	0.13	0/586	0.33	0/787
14	R	0.15	0/586	0.30	0/787
14	S	0.11	0/586	0.25	0/787
14	T	0.13	0/586	0.33	0/787
14	U	0.25	0/586	0.39	0/787
14	V	0.12	0/586	0.31	0/787
14	W	0.11	0/586	0.23	0/787
14	X	0.14	0/586	0.29	0/787
15	Z	0.18	0/1103	0.39	0/1491
16	a	0.22	0/3788	0.29	0/5127
16	b	0.23	0/3841	0.28	0/5200
16	c	0.23	0/3825	0.31	0/5178
17	d	0.19	0/4296	0.27	0/5810
17	e	0.18	0/4479	0.29	0/6057
17	f	0.21	0/4551	0.32	0/6153
All	All	0.19	0/48646	0.31	0/65765

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in 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	6	1725	1791	1788	58	0
2	8	1098	1109	1108	56	0
3	A	2185	2192	2206	47	0
4	B	992	1059	1058	37	0
5	C	1155	1153	1155	19	0
6	D	1077	998	996	53	0
7	E	225	238	237	3	0
8	G	1583	1619	1617	21	0
9	H	350	357	357	15	0
10	I	2904	2924	2919	34	0
10	L	3015	3035	3033	45	0
11	J	252	265	265	2	0
12	K	384	372	371	7	0
13	M	196	195	194	8	0
14	P	579	629	629	29	0
14	Q	579	629	629	27	0
14	R	579	629	629	46	0
14	S	579	629	629	19	0
14	T	579	629	629	19	0
14	U	579	616	629	23	0
14	V	579	629	629	15	0
14	W	579	629	629	20	0
14	X	579	629	629	23	0
15	Z	1092	1096	1106	38	0
16	a	3732	3807	3818	49	0
16	b	3783	3865	3864	58	0
16	c	3767	3855	3854	58	0
17	d	4224	4271	4269	53	0
17	e	4405	4435	4431	55	0
17	f	4475	4518	4516	81	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	1	355	355	86	1	0
19	2	660	660	143	7	0
20	3	45	45	11	0	0
21	5	95	95	21	0	0
22	a	31	12	12	0	0
22	b	31	12	12	0	0
22	c	31	12	12	0	0
23	b	1	0	0	0	0
23	c	1	0	0	0	0
23	f	1	0	0	0	0
24	d	27	12	12	1	0
24	f	27	12	12	1	0
All	All	49135	50017	49144	845	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 9.

All (845) 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)
3:A:117:LEU:HD11	3:A:126:LEU:HD11	1.53	0.90
17:f:151:LYS:HA	17:f:155:LEU:HD12	1.61	0.81
1:6:118:THR:HG23	1:6:177:LEU:HD23	1.61	0.81
14:P:61:LEU:HD11	14:R:59:PHE:CD1	2.17	0.80
14:P:23:LEU:HD21	14:S:65:ILE:HG22	1.66	0.78
1:6:181:MET:HE1	1:6:223:ILE:HG22	1.66	0.77
16:a:482:THR:HG21	17:d:562:ILE:HD11	1.68	0.75
14:U:12:LYS:HB2	14:U:76:ILE:O	1.86	0.74
4:B:121:LEU:HD11	19:2:65:UNK:HA	1.69	0.74
15:Z:227:ASP:OD1	15:Z:228:PRO:HD3	1.88	0.74
16:c:37:ILE:HD12	16:c:42:VAL:HG12	1.71	0.73
6:D:380:TRP:O	6:D:384:THR:HG23	1.89	0.72
2:8:49:TRP:HB2	4:B:63:TYR:CZ	2.25	0.72
16:b:100:VAL:HG21	16:b:251:THR:HG23	1.71	0.72
17:f:481:PHE:CD1	17:f:490:VAL:HG21	2.25	0.72
14:Q:34:PHE:O	14:Q:38:ILE:HD12	1.90	0.71
17:e:545:LEU:HD23	17:e:545:LEU:O	1.89	0.71
14:Q:59:PHE:CD1	14:R:61:LEU:HD21	2.26	0.70
3:A:216:PHE:CE2	3:A:223:ILE:HG23	2.27	0.70
16:b:65:MET:SD	16:b:98:ILE:HD11	2.32	0.70
14:P:47:LEU:HD21	14:R:41:PHE:CE2	2.27	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:e:51:ILE:HG22	17:e:88:VAL:HG22	1.74	0.69
11:J:27:ALA:HB3	11:J:30:GLN:OE1	1.92	0.69
15:Z:212:MET:HE2	15:Z:216:HIS:HB2	1.76	0.68
17:f:195:VAL:HG12	17:f:195:VAL:O	1.93	0.68
14:Q:24:ILE:HG23	14:R:24:ILE:HG23	1.76	0.68
15:Z:212:MET:HE3	15:Z:213:SER:H	1.60	0.67
2:8:45:ILE:HG12	4:B:63:TYR:CE1	2.30	0.67
17:d:162:GLY:N	17:d:329:THR:HG22	2.10	0.67
16:c:42:VAL:HG23	16:c:42:VAL:O	1.95	0.67
17:f:277:LEU:HD21	17:f:279:ILE:HD11	1.76	0.66
16:c:37:ILE:HG22	17:d:65:HIS:HB2	1.76	0.66
17:f:155:LEU:HD13	17:f:461:THR:HG21	1.78	0.66
3:A:50:GLN:HE22	3:A:188:VAL:HG22	1.60	0.66
14:Q:59:PHE:CE1	14:R:61:LEU:HD21	2.31	0.66
16:b:65:MET:HE3	16:b:67:LEU:HD21	1.78	0.66
10:I:369:SER:O	10:I:370:MET:HE2	1.95	0.66
17:f:303:VAL:HG12	17:f:303:VAL:O	1.96	0.66
10:L:50:LEU:HD21	10:L:82:ALA:HB3	1.78	0.65
14:S:41:PHE:HE1	14:T:51:LEU:HD23	1.62	0.65
3:A:92:ILE:HD11	3:A:116:VAL:HG11	1.78	0.65
17:e:244:GLY:HA3	17:e:256:VAL:HG21	1.79	0.65
10:I:90:ALA:HB3	13:M:50:GLU:OE2	1.96	0.64
16:a:69:LEU:HD23	16:a:74:VAL:HG23	1.79	0.64
14:Q:54:TYR:HA	14:Q:57:ILE:HG22	1.79	0.64
14:P:61:LEU:HD13	14:R:34:PHE:CE2	2.32	0.64
15:Z:193:ASP:HA	15:Z:196:ILE:HD12	1.80	0.64
17:f:145:ILE:HD11	17:f:158:PRO:HB3	1.80	0.64
17:f:180:MET:HE1	17:f:209:LEU:HD13	1.80	0.64
14:Q:34:PHE:CE2	14:R:61:LEU:HD22	2.33	0.63
3:A:162:GLU:OE2	9:H:17:MET:HE3	1.99	0.63
6:D:442:HIS:CG	6:D:442:HIS:O	2.51	0.63
16:a:33:VAL:HG12	16:a:35:LYS:HE2	1.80	0.63
3:A:189:LEU:HD12	3:A:253:THR:HG21	1.81	0.62
15:Z:250:GLN:O	15:Z:253:THR:HG22	1.99	0.62
1:6:173:LEU:HD11	1:6:234:LEU:HD12	1.81	0.62
14:V:59:PHE:CZ	14:W:61:LEU:HD12	2.34	0.62
15:Z:212:MET:HE2	15:Z:216:HIS:CB	2.30	0.62
3:A:216:PHE:HE2	3:A:223:ILE:HG23	1.64	0.62
8:G:202:ILE:HG22	8:G:219:LEU:HD23	1.82	0.62
14:S:41:PHE:CE1	14:T:51:LEU:HD23	2.34	0.62
14:R:13:MET:HE3	14:R:13:MET:O	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:b:447:MET:N	16:b:447:MET:HE2	2.15	0.62
17:f:279:ILE:HG21	17:f:282:ILE:HD13	1.82	0.61
16:a:132:VAL:HA	16:a:254:VAL:HG21	1.81	0.61
16:c:37:ILE:CD1	16:c:42:VAL:HG12	2.30	0.61
16:c:181:ILE:HD12	16:c:354:LEU:HD11	1.83	0.61
15:Z:146:LEU:HD12	15:Z:147:SER:N	2.15	0.61
17:f:153:VAL:HG23	17:f:154:ASP:N	2.16	0.61
10:L:104:PRO:O	10:L:105:LEU:HD22	2.01	0.61
14:V:24:ILE:HG23	14:W:24:ILE:HG23	1.83	0.61
15:Z:162:LEU:CD2	15:Z:271:LEU:HD11	2.31	0.60
16:a:464:ARG:HE	16:a:464:ARG:HA	1.66	0.60
1:6:66:TYR:O	1:6:69:VAL:HG12	2.01	0.60
3:A:215:GLU:OE1	3:A:215:GLU:HA	2.02	0.60
14:W:21:SER:O	14:W:24:ILE:HG22	2.00	0.60
2:8:46:TYR:HA	4:B:63:TYR:OH	2.01	0.60
14:W:3:ASN:HA	14:X:4:LEU:HD22	1.83	0.60
10:L:126:MET:HA	10:L:126:MET:HE3	1.82	0.60
18:1:12:UNK:O	18:1:13:UNK:C	2.49	0.60
2:8:49:TRP:O	2:8:52:PHE:CD1	2.55	0.60
16:c:215:ILE:HD12	16:c:237:THR:HG22	1.83	0.60
17:f:167:LEU:HD21	17:f:178:LEU:HD22	1.82	0.60
17:e:445:ALA:O	17:e:449:THR:HG22	2.02	0.60
14:Q:18:LEU:HD21	14:X:18:LEU:HB2	1.83	0.59
17:f:324:MET:N	17:f:324:MET:HE2	2.17	0.59
4:B:104:PHE:CZ	6:D:347:LYS:HE2	2.37	0.59
8:G:98:SER:CB	16:a:35:LYS:HE3	2.32	0.59
1:6:177:LEU:HD22	1:6:231:PHE:CZ	2.38	0.59
14:W:67:LEU:O	14:W:71:VAL:HG23	2.02	0.59
16:c:212:ARG:CG	16:c:237:THR:HG21	2.33	0.59
16:c:42:VAL:HG11	16:c:78:LEU:HD21	1.85	0.59
3:A:162:GLU:HG3	9:H:15:VAL:HG13	1.86	0.58
14:R:24:ILE:HG23	14:R:25:GLY:N	2.18	0.58
1:6:58:TRP:O	1:6:62:VAL:HG12	2.04	0.58
3:A:264:GLU:OE1	3:A:265:VAL:HG23	2.03	0.58
8:G:98:SER:HB2	16:a:35:LYS:HE3	1.85	0.58
1:6:69:VAL:HG22	1:6:86:PHE:CE1	2.38	0.58
14:Q:16:SER:OG	14:R:72:MET:HE1	2.04	0.58
1:6:86:PHE:HD1	1:6:89:VAL:CG2	2.16	0.58
17:f:580:ILE:HD11	17:f:584:TYR:CZ	2.39	0.58
16:b:170:VAL:O	16:b:170:VAL:HG13	2.02	0.58
2:8:41:LEU:O	2:8:45:ILE:HG22	2.03	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:P:30:VAL:HG21	14:S:65:ILE:HD11	1.85	0.57
16:a:283:MET:O	16:a:287:LEU:HD23	2.04	0.57
2:8:80:LEU:HD21	6:D:384:THR:HB	1.86	0.57
16:b:59:SER:O	16:b:62:ILE:HG22	2.05	0.57
17:e:303:VAL:O	17:e:303:VAL:HG13	2.04	0.57
16:b:188:ASN:C	16:b:188:ASN:HD22	2.10	0.57
10:I:49:VAL:O	10:I:53:VAL:HG23	2.04	0.57
16:b:267:LEU:HD12	16:b:268:ILE:H	1.70	0.57
2:8:104:THR:HG22	15:Z:157:GLU:OE1	2.05	0.57
17:f:152:VAL:HG23	17:f:153:VAL:HG13	1.87	0.57
1:6:116:ILE:HG21	2:8:13:TYR:HE1	1.69	0.56
16:a:276:GLN:NE2	16:a:303:LEU:HD11	2.20	0.56
2:8:32:VAL:O	2:8:36:PHE:CE1	2.58	0.56
10:I:336:ILE:HD11	10:L:161:MET:HE3	1.87	0.56
10:L:192:LEU:HD13	10:L:233:VAL:HG13	1.85	0.56
13:M:52:ILE:HG13	13:M:53:THR:N	2.20	0.56
6:D:387:LEU:O	6:D:390:VAL:HG22	2.06	0.56
8:G:206:THR:HG23	8:G:218:ALA:HB2	1.87	0.56
17:d:345:ALA:HB3	17:d:346:PRO:HD3	1.86	0.56
1:6:38:ILE:HD11	1:6:42:PHE:CZ	2.41	0.56
14:P:67:LEU:O	14:P:71:VAL:HG23	2.06	0.56
16:b:58:PHE:HB2	16:b:62:ILE:HG23	1.88	0.56
17:d:168:PHE:HE1	17:d:334:ILE:HD12	1.70	0.56
16:a:183:LEU:HD11	16:a:218:LEU:CD1	2.37	0.55
17:d:261:LEU:HD21	17:d:319:ARG:HB2	1.89	0.55
2:8:100:ILE:O	2:8:104:THR:HG23	2.07	0.55
14:W:24:ILE:HD12	14:X:24:ILE:CG2	2.36	0.55
15:Z:165:LEU:O	15:Z:169:VAL:HG23	2.06	0.55
10:L:262:MET:HE2	10:L:262:MET:HA	1.88	0.55
15:Z:213:SER:O	15:Z:217:VAL:HG23	2.07	0.55
16:b:55:MET:HE1	16:b:63:GLN:HB3	1.88	0.55
14:P:23:LEU:CD2	14:S:65:ILE:HG22	2.36	0.55
16:b:104:MET:HE1	16:b:107:LEU:HD11	1.88	0.55
17:e:160:ALA:HB2	17:e:381:MET:HE1	1.89	0.55
17:e:276:LEU:HD12	17:e:329:THR:O	2.07	0.55
3:A:202:LYS:O	3:A:205:VAL:HG12	2.07	0.54
14:Q:24:ILE:HG12	14:R:24:ILE:HG22	1.89	0.54
6:D:384:THR:HG22	15:Z:247:PHE:CZ	2.42	0.54
16:a:37:ILE:HD13	16:a:42:VAL:HG22	1.89	0.54
1:6:86:PHE:HD2	6:D:444:TRP:HZ3	1.55	0.54
14:P:47:LEU:HD21	14:R:41:PHE:CD2	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:f:368:ILE:HG23	17:f:439:SER:HB2	1.89	0.54
3:A:117:LEU:HD13	3:A:141:TYR:CG	2.43	0.54
10:L:360:VAL:HG23	10:L:361:LYS:N	2.22	0.54
14:U:9:GLN:OE1	14:U:12:LYS:HD2	2.07	0.54
14:P:24:ILE:HD11	14:S:25:GLY:N	2.23	0.54
17:d:180:MET:SD	17:d:209:LEU:HD21	2.48	0.54
10:I:135:MET:HE2	10:I:136:LEU:HG	1.90	0.54
17:d:168:PHE:CE1	17:d:334:ILE:HD12	2.43	0.54
17:e:180:MET:HE2	17:e:213:MET:HA	1.89	0.54
17:e:584:TYR:O	17:e:588:LEU:HD23	2.07	0.54
2:8:82:ILE:HA	2:8:85:PHE:CE1	2.42	0.54
10:L:374:THR:HG22	10:L:388:ILE:H	1.73	0.54
17:f:151:LYS:NZ	17:f:456:VAL:HG21	2.22	0.54
14:P:61:LEU:HD13	14:R:34:PHE:CZ	2.43	0.53
14:T:23:LEU:HD11	14:U:65:ILE:HG23	1.89	0.53
15:Z:251:SER:O	15:Z:254:PHE:CD1	2.61	0.53
8:G:126:PHE:CE2	8:G:131:LEU:HD21	2.42	0.53
16:a:183:LEU:HD11	16:a:218:LEU:HD11	1.90	0.53
16:b:38:VAL:HG13	16:b:38:VAL:O	2.08	0.53
17:f:154:ASP:O	17:f:155:LEU:HD23	2.08	0.53
8:G:98:SER:OG	16:a:35:LYS:HE3	2.08	0.53
14:P:15:GLY:HA3	14:R:13:MET:HE2	1.89	0.53
16:a:140:ILE:HD11	17:d:116:ASP:HA	1.89	0.53
16:b:166:GLN:NE2	16:b:376:VAL:HB	2.23	0.53
1:6:86:PHE:HD2	6:D:444:TRP:CZ3	2.27	0.53
6:D:360:GLU:O	6:D:361:TYR:HB2	2.08	0.53
14:Q:24:ILE:HG12	14:R:24:ILE:CG2	2.39	0.53
14:P:4:LEU:HD11	14:R:3:ASN:OD1	2.09	0.53
15:Z:227:ASP:OD1	15:Z:228:PRO:CD	2.55	0.53
16:c:392:LEU:HD12	16:c:451:ILE:HD11	1.90	0.53
17:e:110:VAL:CG2	17:e:256:VAL:HG22	2.39	0.53
17:d:145:ILE:HD11	17:d:381:MET:HB3	1.91	0.53
14:U:1:MET:HA	14:U:1:MET:HE2	1.90	0.52
1:6:69:VAL:HG13	1:6:86:PHE:HZ	1.74	0.52
16:c:484:VAL:HA	16:c:487:LEU:HD13	1.91	0.52
17:f:62:VAL:HG12	17:f:73:THR:HG22	1.91	0.52
10:I:126:MET:HE2	10:I:349:ALA:HB1	1.90	0.52
10:L:104:PRO:C	10:L:105:LEU:HD22	2.34	0.52
14:S:6:ILE:HD11	14:T:8:LEU:HB2	1.90	0.52
14:T:24:ILE:HD12	14:U:24:ILE:CG2	2.39	0.52
17:e:261:LEU:HD11	17:e:320:ILE:HG23	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:372:VAL:HG13	10:L:401:TYR:OH	2.09	0.52
8:G:139:LEU:HD13	8:G:142:ASP:OD2	2.10	0.52
14:R:72:MET:HE3	14:R:76:ILE:HD11	1.92	0.52
14:U:4:LEU:O	14:U:7:ILE:HG22	2.10	0.52
16:c:212:ARG:HG2	16:c:237:THR:HG21	1.90	0.52
17:f:600:LYS:HD3	17:f:600:LYS:C	2.35	0.52
14:R:29:GLY:O	14:R:33:VAL:HG23	2.10	0.52
14:T:6:ILE:HG21	14:U:4:LEU:HD21	1.92	0.52
17:e:110:VAL:HG22	17:e:256:VAL:HG22	1.90	0.52
16:b:50:VAL:O	16:b:50:VAL:HG13	2.10	0.52
2:8:32:VAL:O	2:8:35:VAL:HG22	2.10	0.52
10:I:53:VAL:HG13	10:I:72:LEU:HD13	1.91	0.52
16:c:78:LEU:HD11	16:c:85:ILE:HD11	1.90	0.52
17:d:173:VAL:HG21	17:d:359:LEU:O	2.11	0.51
17:d:303:VAL:O	17:d:303:VAL:HG12	2.10	0.51
13:M:52:ILE:O	13:M:56:LEU:HD23	2.09	0.51
16:c:165:GLY:H	16:c:324:THR:HG22	1.73	0.51
17:f:244:GLY:N	17:f:256:VAL:HG21	2.25	0.51
6:D:421:VAL:HA	6:D:424:ILE:HG22	1.92	0.51
14:P:72:MET:HE3	14:R:70:LEU:HD11	1.91	0.51
15:Z:212:MET:HG2	15:Z:217:VAL:HG22	1.92	0.51
16:a:250:TYR:OH	16:a:303:LEU:HD12	2.10	0.51
17:f:150:ILE:CG2	17:f:153:VAL:HG22	2.40	0.51
1:6:35:VAL:CG1	12:K:51:VAL:HG22	2.40	0.51
2:8:75:PHE:HD1	15:Z:186:LEU:HD21	1.74	0.51
14:V:6:ILE:HG21	14:W:4:LEU:HB3	1.93	0.51
1:6:188:LEU:HD11	1:6:220:GLU:OE1	2.11	0.51
16:b:188:ASN:O	16:b:188:ASN:ND2	2.39	0.51
3:A:204:PHE:HB3	3:A:224:LEU:HD11	1.91	0.51
3:A:215:GLU:CD	14:S:43:ARG:HE	2.19	0.51
10:L:300:PRO:HG2	10:L:329:VAL:HG21	1.91	0.51
14:Q:24:ILE:N	14:X:24:ILE:HD11	2.26	0.51
16:a:347:ILE:HG22	17:d:246:MET:HE1	1.92	0.51
16:c:477:TYR:CG	17:f:594:GLU:OE2	2.64	0.51
2:8:51:PHE:CE2	15:Z:212:MET:HE1	2.46	0.51
2:8:82:ILE:O	2:8:86:ILE:HG12	2.11	0.51
14:T:14:ILE:HD12	14:U:14:ILE:HG13	1.93	0.51
4:B:98:LYS:O	4:B:102:LEU:HG	2.11	0.51
9:H:16:ASN:C	9:H:17:MET:HE2	2.36	0.51
10:L:265:LEU:HD12	10:L:348:ALA:HA	1.92	0.51
17:e:484:VAL:HG21	17:e:490:VAL:HG22	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:6:31:ILE:H	1:6:31:ILE:HD12	1.76	0.51
1:6:86:PHE:CD2	6:D:444:TRP:CZ3	2.99	0.51
8:G:140:VAL:O	8:G:143:ILE:HG22	2.10	0.51
16:a:363:ILE:HG23	16:a:363:ILE:O	2.11	0.51
2:8:104:THR:HA	2:8:107:LEU:HD12	1.92	0.50
3:A:165:GLN:NE2	9:H:33:VAL:HG11	2.26	0.50
4:B:121:LEU:O	4:B:124:LYS:HG3	2.10	0.50
14:S:30:VAL:HG21	14:T:65:ILE:HD11	1.92	0.50
6:D:340:VAL:HG13	6:D:347:LYS:HG3	1.93	0.50
10:L:241:ASN:ND2	10:L:293:ASN:HA	2.26	0.50
14:Q:4:LEU:HB3	14:X:6:ILE:HG21	1.93	0.50
10:L:355:HIS:CD2	10:L:370:MET:HG2	2.47	0.50
14:P:76:ILE:HG12	14:R:13:MET:HE1	1.92	0.50
10:L:146:LEU:HD23	10:L:156:LEU:HD11	1.93	0.50
17:d:336:VAL:HG13	17:d:336:VAL:O	2.12	0.50
17:e:320:ILE:O	17:e:320:ILE:HG13	2.11	0.50
15:Z:257:TYR:O	15:Z:260:LEU:HG	2.11	0.50
17:f:199:VAL:HG21	17:f:257:ALA:HB2	1.93	0.50
2:8:114:LEU:O	2:8:118:LEU:HG	2.11	0.50
8:G:59:ALA:HB2	8:G:143:ILE:HD11	1.94	0.50
13:M:54:ASN:O	13:M:58:LEU:HD23	2.12	0.50
14:Q:34:PHE:HE2	14:R:61:LEU:HD22	1.76	0.50
14:S:23:LEU:HD13	14:T:68:LEU:CD1	2.41	0.50
14:U:34:PHE:HE2	14:V:61:LEU:HD12	1.77	0.50
16:c:38:VAL:HG12	16:c:39:ASP:N	2.27	0.50
2:8:38:ASN:ND2	6:D:421:VAL:HG11	2.26	0.50
14:U:24:ILE:HD13	14:V:24:ILE:HB	1.94	0.50
17:f:62:VAL:HA	17:f:73:THR:HG22	1.93	0.50
1:6:86:PHE:N	1:6:87:PRO:CD	2.75	0.50
9:H:17:MET:HE2	9:H:17:MET:N	2.27	0.50
14:S:32:ILE:HG22	14:T:32:ILE:HD13	1.94	0.50
14:W:24:ILE:HG23	14:W:25:GLY:N	2.26	0.50
16:b:234:VAL:HG13	16:b:234:VAL:O	2.11	0.50
17:f:45:ILE:HD11	17:f:63:ALA:O	2.12	0.50
17:f:556:TYR:O	17:f:560:VAL:HG12	2.12	0.50
1:6:89:VAL:HA	1:6:92:VAL:HG22	1.94	0.49
2:8:104:THR:HG22	15:Z:157:GLU:CD	2.37	0.49
4:B:60:ILE:O	4:B:63:TYR:HB2	2.12	0.49
16:a:149:MET:HE3	16:a:162:VAL:HG13	1.94	0.49
5:C:14:VAL:HG22	5:C:95:SER:OG	2.12	0.49
14:Q:38:ILE:HG21	14:R:37:LEU:HA	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:b:215:ILE:HD11	16:b:233:ILE:CG2	2.41	0.49
17:d:173:VAL:HG22	17:d:173:VAL:O	2.13	0.49
17:e:34:ASP:C	17:e:34:ASP:OD1	2.55	0.49
19:2:169:UNK:O	19:2:170:UNK:C	2.60	0.49
3:A:219:SER:O	3:A:223:ILE:HG22	2.13	0.49
4:B:14:ILE:HD11	4:B:29:ILE:HD13	1.95	0.49
13:M:46:THR:HA	13:M:49:LYS:HB2	1.93	0.49
16:a:464:ARG:HA	16:a:464:ARG:NE	2.27	0.49
1:6:33:LEU:HD21	2:8:19:PHE:CB	2.43	0.49
2:8:49:TRP:HB2	4:B:63:TYR:CE2	2.46	0.49
4:B:89:LEU:O	4:B:89:LEU:HD23	2.12	0.49
4:B:121:LEU:HD21	19:2:65:UNK:HA	1.95	0.49
10:I:369:SER:O	10:I:370:MET:CE	2.60	0.49
14:X:67:LEU:O	14:X:71:VAL:HG23	2.13	0.49
14:Q:34:PHE:CE2	14:R:61:LEU:HD13	2.47	0.49
14:Q:61:LEU:HD13	14:X:34:PHE:CE1	2.48	0.49
14:T:24:ILE:HD12	14:U:24:ILE:HG23	1.95	0.49
17:f:275:VAL:HG12	17:f:276:LEU:N	2.28	0.49
15:Z:200:LYS:HG2	15:Z:227:ASP:HB2	1.95	0.49
17:f:560:VAL:HG13	17:f:561:ALA:N	2.28	0.49
1:6:116:ILE:HG21	2:8:13:TYR:CE1	2.48	0.49
3:A:66:PHE:HZ	5:C:90:THR:HG23	1.78	0.49
3:A:214:TYR:CZ	5:C:56:PRO:HB2	2.47	0.49
10:I:126:MET:HE3	10:I:349:ALA:O	2.12	0.49
16:a:267:LEU:HD21	16:a:269:ILE:HD11	1.94	0.49
16:b:188:ASN:C	16:b:188:ASN:ND2	2.70	0.49
17:d:167:LEU:HD22	17:d:178:LEU:HD23	1.95	0.49
1:6:231:PHE:O	1:6:235:THR:HG22	2.13	0.49
3:A:117:LEU:HD11	3:A:126:LEU:CD1	2.35	0.49
4:B:104:PHE:CZ	6:D:347:LYS:O	2.66	0.49
14:R:23:LEU:HD21	14:R:70:LEU:HD13	1.95	0.49
16:c:462:VAL:O	16:c:462:VAL:HG22	2.11	0.49
15:Z:212:MET:CG	15:Z:217:VAL:HG22	2.43	0.48
2:8:78:TYR:O	2:8:82:ILE:HG12	2.12	0.48
17:e:449:THR:HG23	17:e:451:PHE:H	1.78	0.48
17:f:387:VAL:HG21	17:f:391:HIS:CD2	2.48	0.48
1:6:83:LEU:HD23	6:D:442:HIS:CE1	2.48	0.48
17:d:58:LEU:HD23	17:d:77:ASP:HB3	1.94	0.48
14:S:34:PHE:CZ	14:T:61:LEU:HD12	2.48	0.48
16:b:174:ARG:HD2	17:f:350:PHE:CE2	2.49	0.48
16:c:212:ARG:HG3	16:c:237:THR:HG21	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:e:168:PHE:CD2	17:e:358:VAL:HG12	2.49	0.48
17:f:303:VAL:O	17:f:303:VAL:CG1	2.61	0.48
14:P:37:LEU:HD12	14:R:38:ILE:HD11	1.95	0.48
17:d:180:MET:HE2	17:d:180:MET:HA	1.95	0.48
17:e:322:THR:HG23	17:e:322:THR:O	2.13	0.48
17:f:155:LEU:HD13	17:f:461:THR:CG2	2.43	0.48
16:a:97:ILE:HG22	16:a:98:ILE:N	2.29	0.48
16:a:508:TYR:OH	17:d:598:LEU:HD12	2.14	0.48
16:c:223:GLU:OE2	16:c:228:LEU:HD13	2.13	0.48
15:Z:162:LEU:HD21	15:Z:271:LEU:HD11	1.95	0.48
15:Z:243:GLU:O	15:Z:246:GLN:HB3	2.14	0.48
16:c:447:MET:N	16:c:447:MET:HE2	2.28	0.48
3:A:274:ASN:OD1	17:e:340:ASP:OD1	2.31	0.48
14:P:61:LEU:HD22	14:R:34:PHE:HE2	1.79	0.48
14:Q:41:PHE:HD2	14:R:51:LEU:HD21	1.78	0.48
14:U:12:LYS:NZ	14:U:12:LYS:HB3	2.29	0.48
16:b:132:VAL:HA	16:b:254:VAL:HG21	1.96	0.48
16:c:272:ASP:HB3	16:c:275:LYS:HG2	1.96	0.48
1:6:44:PHE:CD1	2:8:31:PHE:CD1	3.02	0.48
10:I:127:LEU:HD22	10:I:144:LEU:HD21	1.95	0.48
10:L:87:GLY:C	13:M:49:LYS:NZ	2.72	0.48
16:a:478:SER:O	16:a:482:THR:HG22	2.13	0.48
16:b:42:VAL:HG11	16:b:58:PHE:HE2	1.78	0.48
1:6:32:ILE:HD11	1:6:109:PHE:CD1	2.48	0.47
5:C:23:LEU:HD22	5:C:99:VAL:CG1	2.44	0.47
10:L:145:GLN:C	10:L:146:LEU:HD12	2.38	0.47
14:P:24:ILE:HG21	14:R:24:ILE:HD12	1.95	0.47
14:T:59:PHE:CZ	14:U:61:LEU:HD22	2.49	0.47
16:c:145:VAL:HG13	16:c:164:ARG:O	2.14	0.47
17:f:276:LEU:HD12	17:f:329:THR:HB	1.96	0.47
3:A:38:MET:HA	3:A:41:ILE:HG12	1.96	0.47
3:A:138:GLN:O	3:A:142:ALA:HB2	2.14	0.47
14:V:38:ILE:HG22	14:W:54:TYR:HB3	1.95	0.47
16:b:62:ILE:HG21	16:b:85:ILE:HD11	1.97	0.47
17:d:261:LEU:HD22	17:d:316:LEU:HD12	1.96	0.47
4:B:91:LEU:HD23	4:B:91:LEU:C	2.39	0.47
14:Q:61:LEU:HD11	14:X:59:PHE:CD2	2.49	0.47
14:R:65:ILE:HD12	14:R:65:ILE:H	1.80	0.47
14:W:24:ILE:HD12	14:X:24:ILE:HG21	1.97	0.47
16:b:483:ASN:OD1	17:e:557:THR:HG23	2.14	0.47
17:d:286:THR:HG23	17:d:309:LEU:HD13	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:f:173:VAL:HG12	17:f:174:GLY:N	2.29	0.47
1:6:32:ILE:HD12	1:6:32:ILE:H	1.79	0.47
3:A:65:ARG:O	3:A:69:GLU:OE1	2.33	0.47
6:D:442:HIS:ND1	6:D:444:TRP:HB2	2.29	0.47
14:R:21:SER:O	14:R:24:ILE:HG22	2.14	0.47
16:a:456:THR:O	16:a:458:VAL:HG13	2.15	0.47
17:f:155:LEU:HD13	17:f:461:THR:CB	2.44	0.47
6:D:340:VAL:CG1	6:D:347:LYS:HG3	2.45	0.47
10:L:94:MET:SD	10:L:94:MET:C	2.98	0.47
10:L:144:LEU:HB2	10:L:174:VAL:HG12	1.95	0.47
14:Q:24:ILE:HB	14:X:24:ILE:HD11	1.96	0.47
16:a:38:VAL:O	16:a:39:ASP:OD2	2.33	0.47
16:b:104:MET:HE3	16:b:104:MET:HA	1.95	0.47
16:b:270:TYR:OH	16:b:307:LEU:HD11	2.15	0.47
17:e:143:ASP:OD1	17:e:143:ASP:O	2.33	0.47
17:f:145:ILE:HD11	17:f:158:PRO:CB	2.45	0.47
19:2:109:UNK:O	19:2:110:UNK:C	2.61	0.47
1:6:239:LEU:HD23	1:6:242:ILE:HD12	1.96	0.47
6:D:361:TYR:N	6:D:362:PRO:CD	2.78	0.47
16:b:44:ILE:HG22	16:b:45:GLU:N	2.29	0.47
17:d:481:PHE:CE2	17:d:490:VAL:HG11	2.49	0.47
17:e:275:VAL:HG12	17:e:276:LEU:N	2.29	0.47
17:e:556:TYR:CZ	17:e:560:VAL:HG11	2.50	0.47
4:B:104:PHE:CE1	6:D:347:LYS:HE2	2.50	0.47
5:C:19:LEU:HD13	5:C:51:LEU:HD12	1.97	0.47
10:L:254:ILE:HG23	10:L:254:ILE:O	2.15	0.47
10:I:398:ASP:OD1	10:L:49:VAL:HG21	2.15	0.47
16:a:33:VAL:CG1	16:a:35:LYS:HE2	2.45	0.47
16:b:512:ILE:HG22	16:b:512:ILE:O	2.15	0.47
16:c:97:ILE:HD11	17:f:80:GLU:HG3	1.96	0.47
17:f:470:GLU:OE2	17:f:472:LYS:HG3	2.15	0.47
1:6:35:VAL:HG11	12:K:51:VAL:HG22	1.96	0.46
14:Q:32:ILE:HG21	14:X:32:ILE:HG22	1.96	0.46
16:b:50:VAL:HG13	16:b:69:LEU:HD11	1.96	0.46
17:d:241:LEU:HD12	17:d:241:LEU:N	2.30	0.46
17:f:227:LEU:HD13	17:f:233:ILE:HA	1.97	0.46
1:6:173:LEU:HD11	1:6:234:LEU:CD1	2.43	0.46
2:8:35:VAL:HG23	2:8:36:PHE:CE2	2.51	0.46
17:f:148:THR:HG23	17:f:154:ASP:OD2	2.15	0.46
1:6:127:PHE:CG	1:6:128:GLY:N	2.82	0.46
4:B:21:ILE:HG22	4:B:22:SER:N	2.30	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:96:GLY:O	4:B:100:ASP:HB2	2.15	0.46
6:D:354:TYR:CE2	6:D:358:LEU:HD11	2.50	0.46
14:P:24:ILE:CG2	14:R:24:ILE:CD1	2.94	0.46
14:R:61:LEU:HD23	14:R:61:LEU:C	2.40	0.46
16:a:299:ASP:HA	17:d:291:GLU:OE1	2.16	0.46
16:c:102:VAL:HG23	16:c:255:ILE:HA	1.97	0.46
16:c:165:GLY:N	16:c:324:THR:HG22	2.30	0.46
8:G:128:VAL:HA	8:G:132:LEU:HD13	1.97	0.46
16:b:170:VAL:CG1	16:b:328:VAL:HG22	2.45	0.46
16:c:293:ARG:HD2	16:c:339:TYR:CE1	2.51	0.46
17:d:203:THR:HG22	17:d:245:GLN:HG3	1.98	0.46
17:d:483:MET:O	17:d:483:MET:SD	2.73	0.46
17:f:153:VAL:HG23	17:f:154:ASP:H	1.80	0.46
1:6:83:LEU:HD21	6:D:444:TRP:HE3	1.80	0.46
1:6:192:SER:HA	4:B:26:ILE:HD11	1.97	0.46
6:D:336:PHE:O	6:D:340:VAL:HG23	2.15	0.46
10:L:302:ILE:O	10:L:302:ILE:HG22	2.16	0.46
16:a:345:ILE:HG23	17:d:171:ALA:HB1	1.97	0.46
16:b:97:ILE:HG22	16:b:98:ILE:N	2.30	0.46
16:c:377:GLY:O	16:c:381:GLN:OE1	2.34	0.46
14:T:41:PHE:CE2	14:U:47:LEU:HD21	2.51	0.46
15:Z:249:GLN:O	15:Z:252:ALA:HB3	2.16	0.46
17:d:107:ILE:HA	17:d:241:LEU:O	2.15	0.46
17:e:268:ARG:HE	17:e:328:ILE:HD12	1.81	0.46
19:2:68:UNK:O	19:2:69:UNK:C	2.63	0.46
14:V:23:LEU:HD12	14:W:65:ILE:HD11	1.95	0.46
14:V:24:ILE:HD13	14:W:24:ILE:HG21	1.98	0.46
17:d:167:LEU:HD12	17:d:179:ILE:CD1	2.46	0.46
17:e:71:CYS:O	17:e:73:THR:HG23	2.16	0.46
17:e:287:GLN:OE1	17:e:287:GLN:C	2.59	0.46
1:6:58:TRP:HZ2	12:K:42:ASP:OD1	1.98	0.46
1:6:181:MET:HE3	1:6:227:GLN:HG2	1.97	0.46
4:B:100:ASP:OD1	4:B:103:LYS:HE2	2.15	0.46
14:P:37:LEU:CD1	14:R:38:ILE:HD11	2.46	0.46
14:Q:3:ASN:HA	14:R:4:LEU:HD13	1.98	0.46
14:U:64:ALA:O	14:U:68:LEU:HD13	2.15	0.46
14:X:26:ALA:O	14:X:30:VAL:HG23	2.16	0.46
16:b:267:LEU:HD11	16:b:326:LEU:HD13	1.97	0.46
17:e:160:ALA:CB	17:e:381:MET:HE1	2.45	0.46
1:6:69:VAL:HG22	1:6:86:PHE:CZ	2.50	0.46
3:A:251:ARG:O	3:A:255:MET:HG2	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:403:ASP:HA	6:D:406:ILE:HD12	1.96	0.46
6:D:441:ASN:OD1	6:D:443:ARG:HG3	2.16	0.46
16:b:167:ARG:O	16:b:348:THR:HB	2.16	0.46
16:b:222:LEU:HD12	16:b:233:ILE:HD11	1.98	0.46
17:e:267:PHE:HB2	17:e:275:VAL:HG21	1.97	0.46
17:f:166:GLY:HA3	17:f:353:LEU:HD13	1.98	0.46
1:6:105:LEU:HD22	12:K:48:ILE:HG23	1.99	0.45
6:D:416:PHE:CE1	6:D:424:ILE:HD11	2.50	0.45
9:H:15:VAL:HG11	9:H:37:ASN:OD1	2.16	0.45
16:b:111:VAL:HG12	16:b:112:ASN:N	2.31	0.45
5:C:41:VAL:HG12	5:C:66:VAL:HG22	1.97	0.45
6:D:387:LEU:HD21	15:Z:240:GLN:HG2	1.99	0.45
10:I:256:PRO:HB2	10:I:373:TRP:CD2	2.51	0.45
14:S:1:MET:HE3	14:S:1:MET:O	2.16	0.45
16:b:414:GLU:HA	16:b:414:GLU:OE1	2.16	0.45
3:A:39:LYS:HD2	3:A:256:ASP:HA	1.98	0.45
10:I:163:LEU:C	10:I:163:LEU:HD23	2.41	0.45
10:I:269:ARG:HG3	10:I:329:VAL:HG13	1.98	0.45
10:I:285:ILE:HG13	10:I:307:ILE:HD11	1.98	0.45
16:a:74:VAL:HG13	16:a:74:VAL:O	2.17	0.45
2:8:77:TYR:CE1	4:B:88:PHE:CD1	3.04	0.45
10:I:235:VAL:HG21	10:I:243:ASN:HB2	1.97	0.45
10:L:185:GLU:O	10:L:185:GLU:HG2	2.16	0.45
14:W:24:ILE:CD1	14:X:24:ILE:CG2	2.93	0.45
16:b:447:MET:HE2	16:b:447:MET:CA	2.46	0.45
17:d:167:LEU:HD22	17:d:178:LEU:CD2	2.46	0.45
17:e:476:LEU:O	17:e:478:GLU:OE1	2.35	0.45
17:f:566:ARG:O	17:f:570:LEU:HD23	2.16	0.45
2:8:87:LEU:HD22	6:D:377:VAL:HG21	1.98	0.45
14:P:38:ILE:HG21	14:S:37:LEU:HA	1.97	0.45
17:d:152:VAL:HG22	17:d:438:LEU:HD22	1.98	0.45
17:d:168:PHE:CZ	17:d:353:LEU:HD12	2.51	0.45
2:8:108:ASN:O	2:8:111:GLN:HG2	2.17	0.45
8:G:192:MET:O	8:G:192:MET:SD	2.74	0.45
14:Q:22:GLY:HA2	14:X:24:ILE:HD13	1.99	0.45
15:Z:162:LEU:HD22	15:Z:271:LEU:HD11	1.99	0.45
6:D:413:MET:HA	6:D:416:PHE:CD2	2.52	0.45
14:P:61:LEU:HD22	14:R:34:PHE:CE2	2.52	0.45
16:a:169:LEU:HD21	16:a:171:ILE:HD11	1.99	0.45
17:d:62:VAL:HA	17:d:73:THR:HG22	1.99	0.45
17:d:155:LEU:HD23	17:d:156:LEU:HD21	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:f:151:LYS:HZ1	17:f:456:VAL:HG21	1.80	0.45
17:f:195:VAL:O	17:f:196:PHE:C	2.58	0.45
3:A:74:PRO:HD2	3:A:197:VAL:HG23	1.99	0.45
16:c:425:MET:HG2	16:c:463:ILE:HD11	1.98	0.45
6:D:381:SER:O	6:D:385:GLN:HG3	2.17	0.45
9:H:17:MET:HE2	9:H:17:MET:CA	2.47	0.45
16:c:102:VAL:HG22	16:c:103:GLY:N	2.32	0.45
16:c:129:LEU:HD23	16:c:129:LEU:H	1.82	0.45
16:c:178:LYS:HG2	16:c:354:LEU:HD12	1.99	0.45
17:e:376:ASP:OD1	17:e:376:ASP:O	2.35	0.45
17:f:345:ALA:HB3	17:f:346:PRO:HD3	1.99	0.45
17:f:456:VAL:HG22	17:f:486:ASP:OD1	2.17	0.45
19:2:106:UNK:O	19:2:107:UNK:C	2.64	0.45
9:H:19:VAL:HG12	9:H:20:GLU:N	2.32	0.45
12:K:45:ILE:HD12	12:K:45:ILE:H	1.82	0.45
14:S:6:ILE:HG21	14:T:4:LEU:HB3	1.99	0.45
17:d:135:THR:HG23	17:d:137:THR:HG22	1.98	0.45
17:f:415:LEU:HD23	17:f:415:LEU:H	1.82	0.45
3:A:66:PHE:HZ	5:C:90:THR:CG2	2.30	0.44
3:A:152:VAL:HA	9:H:17:MET:HE1	1.98	0.44
10:L:251:ALA:HB1	10:L:254:ILE:HG22	1.98	0.44
17:f:461:THR:HG23	17:f:462:ILE:N	2.31	0.44
1:6:43:LEU:HD23	1:6:43:LEU:O	2.17	0.44
1:6:173:LEU:HD13	1:6:176:ARG:HD3	2.00	0.44
6:D:384:THR:HG22	15:Z:247:PHE:CE2	2.52	0.44
10:I:66:VAL:HG23	10:I:67:ARG:N	2.33	0.44
14:Q:61:LEU:HG	14:X:59:PHE:CE2	2.52	0.44
16:a:288:ARG:HD3	17:e:299:ILE:HD11	1.98	0.44
16:c:156:ILE:CD1	16:c:181:ILE:HG23	2.47	0.44
17:e:535:TYR:CD1	17:e:536:PRO:HD2	2.52	0.44
4:B:7:LEU:O	4:B:11:LEU:HD13	2.17	0.44
4:B:59:ASP:O	4:B:62:ALA:HB3	2.17	0.44
8:G:106:MET:SD	8:G:109:LEU:HD13	2.57	0.44
14:U:38:ILE:HG22	14:V:40:ALA:HB2	1.99	0.44
19:2:127:UNK:O	19:2:129:UNK:N	2.51	0.44
5:C:122:PHE:CE2	5:C:145:TYR:CE2	3.05	0.44
17:f:183:ILE:O	17:f:187:ALA:HB3	2.17	0.44
2:8:71:THR:O	2:8:75:PHE:HB2	2.17	0.44
3:A:30:ASN:C	3:A:30:ASN:HD22	2.26	0.44
10:L:261:ALA:HB3	10:L:371:GLY:HA3	1.99	0.44
15:Z:208:GLU:HA	15:Z:212:MET:O	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:b:407:GLN:OE1	16:b:407:GLN:HA	2.18	0.44
1:6:112:THR:HA	1:6:117:PHE:CD1	2.52	0.44
8:G:137:LEU:HA	8:G:140:VAL:HG23	1.99	0.44
10:L:374:THR:HG21	10:L:385:SER:O	2.17	0.44
14:P:32:ILE:HG21	14:R:32:ILE:HA	1.99	0.44
14:P:37:LEU:HD13	14:P:55:ALA:HB2	1.98	0.44
14:W:1:MET:HE3	14:W:1:MET:HA	2.00	0.44
16:c:444:PHE:CD2	16:c:487:LEU:HD23	2.53	0.44
2:8:7:LEU:HD13	2:8:9:PHE:CZ	2.53	0.44
2:8:95:GLU:OE1	2:8:95:GLU:HA	2.17	0.44
6:D:377:VAL:HA	6:D:380:TRP:NE1	2.32	0.44
6:D:391:GLN:O	6:D:395:LEU:HD23	2.17	0.44
11:J:40:TRP:HB3	11:J:41:PRO:HD3	2.00	0.44
14:T:66:GLY:O	14:T:70:LEU:HD23	2.18	0.44
16:a:369:VAL:CG2	16:a:400:ARG:CZ	2.96	0.44
16:a:479:VAL:HG13	17:d:591:ILE:HG22	1.99	0.44
17:e:342:THR:HG22	17:e:342:THR:O	2.18	0.44
17:e:456:VAL:O	17:e:456:VAL:HG23	2.16	0.44
17:f:487:ILE:O	17:f:490:VAL:HG12	2.17	0.44
9:H:17:MET:HE2	9:H:17:MET:HA	1.99	0.44
14:P:24:ILE:CG2	14:R:24:ILE:HD12	2.48	0.44
17:f:478:GLU:HG3	17:f:479:PRO:HD3	2.00	0.44
2:8:77:TYR:OH	4:B:88:PHE:HB3	2.17	0.44
6:D:349:GLN:O	6:D:352:THR:HG22	2.17	0.44
8:G:234:GLU:OE2	8:G:234:GLU:C	2.61	0.44
8:G:237:TRP:O	8:G:240:VAL:HG12	2.18	0.44
14:T:24:ILE:HD11	14:U:22:GLY:C	2.42	0.44
16:c:206:THR:HG22	16:c:207:ALA:N	2.33	0.44
2:8:51:PHE:O	2:8:52:PHE:C	2.61	0.43
3:A:162:GLU:CD	9:H:17:MET:HE3	2.42	0.43
6:D:443:ARG:CD	6:D:450:LYS:HG3	2.48	0.43
10:I:279:LYS:O	10:I:279:LYS:HG3	2.18	0.43
10:L:370:MET:CE	10:L:394:VAL:HG11	2.48	0.43
10:L:386:PRO:O	10:L:388:ILE:HD12	2.18	0.43
13:M:42:LEU:O	13:M:46:THR:HG22	2.17	0.43
16:b:270:TYR:CZ	16:b:307:LEU:HD11	2.53	0.43
16:b:464:ARG:NH1	16:b:467:GLU:OE1	2.50	0.43
1:6:33:LEU:O	1:6:36:ILE:HG22	2.18	0.43
1:6:69:VAL:HG22	1:6:86:PHE:HE1	1.81	0.43
3:A:93:VAL:HB	3:A:180:LEU:HD12	1.98	0.43
4:B:40:PHE:CD1	4:B:40:PHE:C	2.95	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:388:ALA:O	6:D:391:GLN:HB2	2.18	0.43
16:c:181:ILE:HD12	16:c:354:LEU:CD1	2.48	0.43
17:d:323:THR:HG22	17:d:324:MET:N	2.32	0.43
17:e:383:ASP:HA	17:e:392:TYR:CD2	2.53	0.43
10:L:38:GLU:HG2	10:L:39:ASP:N	2.34	0.43
15:Z:251:SER:HG	15:Z:254:PHE:HE1	1.64	0.43
16:c:68:ASN:HB3	16:c:75:SER:OG	2.17	0.43
16:c:483:ASN:O	16:c:487:LEU:CD1	2.67	0.43
17:d:45:ILE:HD13	17:d:65:HIS:NE2	2.32	0.43
3:A:151:GLU:O	3:A:151:GLU:HG2	2.18	0.43
6:D:360:GLU:C	6:D:362:PRO:HD3	2.44	0.43
14:U:9:GLN:HA	14:U:12:LYS:HE2	1.99	0.43
16:b:100:VAL:O	16:b:100:VAL:HG13	2.17	0.43
17:e:282:ILE:HG22	17:e:334:ILE:HG22	2.00	0.43
17:f:200:GLY:O	17:f:284:ARG:HG3	2.18	0.43
1:6:85:TYR:HD2	1:6:239:LEU:HD22	1.83	0.43
3:A:284:GLU:CD	3:A:284:GLU:C	2.86	0.43
5:C:23:LEU:HA	5:C:99:VAL:HG12	2.01	0.43
5:C:144:VAL:HG13	5:C:145:TYR:N	2.33	0.43
10:I:259:PHE:HD2	10:I:389:TYR:OH	2.00	0.43
14:R:24:ILE:CG2	14:R:25:GLY:N	2.81	0.43
16:b:68:ASN:O	16:b:69:LEU:C	2.61	0.43
17:f:405:TYR:HB2	17:f:431:ALA:CB	2.48	0.43
1:6:43:LEU:HD22	1:6:44:PHE:CE1	2.53	0.43
1:6:129:ILE:HA	1:6:242:ILE:HD11	1.99	0.43
4:B:94:ILE:O	4:B:98:LYS:HG2	2.18	0.43
16:a:154:LYS:HA	16:a:443:GLN:OE1	2.18	0.43
16:c:276:GLN:NE2	16:c:303:LEU:HD21	2.33	0.43
17:f:150:ILE:HB	17:f:153:VAL:HG22	2.00	0.43
17:f:437:PHE:HB2	17:f:481:PHE:HD2	1.83	0.43
4:B:111:LYS:HE2	4:B:115:ILE:HD11	2.01	0.43
8:G:140:VAL:N	8:G:141:PRO:HD2	2.33	0.43
10:I:57:GLY:O	10:I:58:ASN:OD1	2.35	0.43
16:a:41:VAL:CG2	16:a:287:LEU:HD22	2.48	0.43
16:a:504:PHE:HD1	17:d:545:LEU:HD13	1.84	0.43
16:b:351:GLN:O	16:b:351:GLN:HG2	2.18	0.43
16:c:479:VAL:HG13	16:c:480:PHE:N	2.33	0.43
17:d:25:ILE:HD11	17:d:88:VAL:HG21	2.00	0.43
1:6:119:PHE:HA	1:6:174:SER:HB3	2.00	0.43
16:b:174:ARG:HD2	17:f:350:PHE:CD2	2.53	0.43
16:b:434:ARG:HD2	16:b:435:PHE:CZ	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:c:38:VAL:O	16:c:39:ASP:C	2.62	0.43
17:d:168:PHE:HE2	17:d:350:PHE:CE1	2.36	0.43
17:e:174:GLY:O	17:e:177:VAL:HG12	2.19	0.43
1:6:62:VAL:HG13	1:6:63:GLU:N	2.34	0.43
2:8:85:PHE:O	2:8:89:LYS:HB2	2.19	0.43
3:A:66:PHE:HD2	3:A:227:TYR:OH	2.02	0.43
3:A:192:THR:HG22	3:A:193:THR:N	2.34	0.43
14:P:65:ILE:HD12	14:R:30:VAL:HG21	2.01	0.43
14:Q:51:LEU:HD22	14:X:38:ILE:HG13	1.99	0.43
14:R:44:ASN:OD1	14:R:46:ASN:OD1	2.37	0.43
14:W:6:ILE:HB	14:X:4:LEU:HD21	2.00	0.43
16:a:347:ILE:HG22	17:d:246:MET:CE	2.49	0.43
17:d:162:GLY:H	17:d:329:THR:HG22	1.81	0.43
17:f:51:ILE:HG22	17:f:52:GLN:N	2.34	0.43
17:f:110:VAL:HG23	17:f:256:VAL:HA	2.00	0.43
17:f:470:GLU:OE2	17:f:472:LYS:CG	2.67	0.43
5:C:91:VAL:HG12	5:C:92:TYR:N	2.33	0.43
14:P:76:ILE:HG23	14:R:13:MET:SD	2.59	0.43
15:Z:199:ASN:OD1	15:Z:202:LEU:HB2	2.19	0.43
16:c:39:ASP:OD1	16:c:286:LEU:HD22	2.19	0.43
17:e:349:THR:HG22	17:e:353:LEU:HD23	2.01	0.43
17:f:61:GLU:OE2	17:f:95:ILE:HD12	2.19	0.43
1:6:211:LEU:C	1:6:211:LEU:HD23	2.43	0.42
2:8:75:PHE:CD1	15:Z:186:LEU:HD21	2.54	0.42
2:8:105:GLN:O	2:8:109:GLN:OE1	2.36	0.42
8:G:206:THR:HG22	8:G:215:GLY:O	2.19	0.42
9:H:15:VAL:HG11	9:H:37:ASN:CG	2.44	0.42
10:L:126:MET:SD	10:L:349:ALA:HA	2.59	0.42
16:b:79:PHE:HB3	16:b:244:LEU:HD11	2.01	0.42
16:c:498:ASN:HA	16:c:501:VAL:HG12	2.00	0.42
17:d:476:LEU:HD12	17:d:476:LEU:H	1.84	0.42
1:6:107:TYR:CZ	12:K:59:HIS:HB2	2.54	0.42
3:A:180:LEU:HD23	3:A:235:GLN:NE2	2.34	0.42
5:C:22:THR:HG23	5:C:32:ASN:HA	2.01	0.42
14:S:3:ASN:O	14:S:6:ILE:HG22	2.19	0.42
14:W:30:VAL:HG21	14:X:65:ILE:HD11	2.00	0.42
15:Z:244:LEU:HA	15:Z:247:PHE:HD2	1.84	0.42
3:A:80:ASN:OD1	3:A:197:VAL:HG21	2.20	0.42
10:I:336:ILE:HG21	10:I:344:SER:HB3	2.01	0.42
16:b:134:VAL:HG22	16:b:135:LYS:N	2.34	0.42
17:e:151:LYS:HG2	17:e:456:VAL:HG21	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:f:153:VAL:CG2	17:f:154:ASP:N	2.82	0.42
2:8:27:SER:O	2:8:31:PHE:HB3	2.20	0.42
14:P:24:ILE:HD11	14:S:24:ILE:N	2.35	0.42
14:S:24:ILE:O	14:S:24:ILE:HG22	2.19	0.42
14:V:38:ILE:HD12	14:W:37:LEU:HA	2.02	0.42
16:c:98:ILE:HG23	16:c:132:VAL:HG12	2.02	0.42
17:e:149:GLY:O	17:e:456:VAL:HG22	2.19	0.42
17:f:381:MET:SD	17:f:386:ILE:HG21	2.60	0.42
2:8:43:ASN:O	2:8:47:LYS:HG3	2.19	0.42
3:A:92:ILE:HD11	3:A:116:VAL:CG1	2.47	0.42
4:B:112:LEU:HD12	4:B:113:ASN:N	2.34	0.42
10:I:235:VAL:O	10:I:262:MET:HG3	2.19	0.42
16:b:151:THR:O	16:b:157:ASP:OD2	2.38	0.42
2:8:26:LEU:O	2:8:30:PHE:CD1	2.73	0.42
5:C:99:VAL:HG22	5:C:101:VAL:HG13	2.01	0.42
6:D:453:TYR:O	6:D:457:LEU:HD23	2.19	0.42
10:I:235:VAL:HG21	10:I:243:ASN:CB	2.50	0.42
10:I:358:ASP:HB3	10:I:363:THR:HG22	2.00	0.42
16:c:375:ARG:HG3	16:c:376:VAL:N	2.35	0.42
16:c:456:THR:HG23	16:c:457:ASN:N	2.34	0.42
1:6:182:LEU:O	1:6:186:THR:HG23	2.20	0.42
6:D:443:ARG:NE	6:D:450:LYS:HG2	2.35	0.42
10:I:139:HIS:HD1	10:L:80:ASP:HB2	1.84	0.42
10:L:233:VAL:HG21	10:L:259:PHE:CE1	2.55	0.42
10:L:241:ASN:OD1	10:L:261:ALA:CB	2.67	0.42
14:P:24:ILE:HG21	14:R:24:ILE:CD1	2.50	0.42
16:c:160:VAL:HG23	16:c:160:VAL:O	2.20	0.42
16:c:355:GLU:OE1	16:c:355:GLU:HA	2.20	0.42
17:e:301:SER:O	17:e:302:ALA:C	2.61	0.42
2:8:49:TRP:CB	4:B:63:TYR:CZ	2.99	0.42
14:Q:4:LEU:HD11	14:X:3:ASN:OD1	2.20	0.42
16:a:222:LEU:HD12	16:a:233:ILE:HD11	2.02	0.42
16:a:455:LEU:HD12	16:a:458:VAL:HG11	2.02	0.42
16:b:399:TYR:CD1	16:b:423:GLY:HA3	2.54	0.42
17:e:336:VAL:HG22	17:e:340:ASP:H	1.84	0.42
2:8:17:THR:HG23	2:8:18:LEU:N	2.34	0.42
5:C:114:LYS:HZ3	9:H:6:ARG:HD3	1.85	0.42
10:L:360:VAL:HG23	10:L:361:LYS:H	1.84	0.42
15:Z:224:VAL:HG22	15:Z:226:THR:HG23	2.02	0.42
17:f:369:TYR:CE2	24:f:702:ADP:C8	3.08	0.42
1:6:40:PHE:CD2	2:8:23:LEU:HD11	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:104:PHE:CD1	6:D:351:SER:HB3	2.55	0.42
6:D:337:SER:O	6:D:340:VAL:HB	2.20	0.42
10:I:63:LYS:C	10:I:64:LEU:HD22	2.45	0.42
16:b:158:CYS:C	16:b:159:LEU:HD12	2.44	0.42
16:c:356:THR:O	16:c:359:PHE:HB3	2.20	0.42
2:8:84:PHE:CZ	6:D:381:SER:HA	2.55	0.41
4:B:98:LYS:O	4:B:101:SER:OG	2.33	0.41
8:G:95:PHE:CE1	8:G:109:LEU:HD11	2.54	0.41
10:L:64:LEU:CD2	13:M:58:LEU:HD13	2.50	0.41
14:W:39:LEU:HD22	14:X:39:LEU:HD22	2.02	0.41
16:a:101:PRO:HA	16:a:128:GLU:O	2.20	0.41
16:a:340:ILE:HB	16:a:341:PRO:HD3	2.01	0.41
16:c:159:LEU:HD23	16:c:369:VAL:HB	2.02	0.41
17:f:276:LEU:HG	17:f:278:PHE:CE2	2.55	0.41
3:A:27:ALA:O	3:A:30:ASN:HB3	2.19	0.41
10:I:346:ALA:HB3	10:L:128:PHE:HE2	1.85	0.41
10:L:128:PHE:CD1	10:L:128:PHE:N	2.86	0.41
14:P:75:LEU:O	14:P:79:ILE:HG22	2.21	0.41
16:a:438:ILE:HG23	16:a:471:PHE:HE2	1.84	0.41
16:c:460:ASN:HA	16:c:463:ILE:HD12	2.01	0.41
17:e:252:ALA:O	17:e:256:VAL:HG23	2.19	0.41
17:f:30:GLY:O	17:f:79:THR:HG21	2.20	0.41
17:f:560:VAL:CG1	17:f:561:ALA:N	2.83	0.41
1:6:83:LEU:HD21	6:D:444:TRP:HB3	2.02	0.41
2:8:56:PHE:HA	2:8:59:VAL:HG22	2.02	0.41
2:8:79:THR:HG21	15:Z:186:LEU:HD11	2.02	0.41
2:8:113:LEU:HD23	2:8:113:LEU:O	2.19	0.41
3:A:289:VAL:HG23	3:A:290:SER:N	2.35	0.41
4:B:27:ILE:HA	4:B:30:PHE:CE1	2.55	0.41
10:L:254:ILE:HD11	10:L:258:ARG:HG3	2.02	0.41
14:T:39:LEU:HG	14:U:36:CYS:SG	2.61	0.41
14:U:38:ILE:HG22	14:V:40:ALA:CB	2.51	0.41
15:Z:226:THR:HA	15:Z:230:ALA:HB3	2.01	0.41
16:a:479:VAL:HG23	16:a:480:PHE:N	2.34	0.41
16:a:506:ILE:HG13	16:a:507:SER:N	2.35	0.41
17:d:177:VAL:HG11	24:d:701:ADP:N7	2.35	0.41
17:e:387:VAL:HG21	17:e:391:HIS:ND1	2.36	0.41
2:8:72:SER:O	2:8:76:ILE:HG12	2.21	0.41
4:B:103:LYS:HG3	4:B:104:PHE:N	2.36	0.41
5:C:114:LYS:HZ3	9:H:6:ARG:CD	2.34	0.41
10:I:336:ILE:HD12	10:L:162:GLU:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:136:LEU:HD23	10:L:360:VAL:HG21	2.02	0.41
14:U:21:SER:O	14:U:24:ILE:HG22	2.20	0.41
14:U:24:ILE:CD1	14:V:25:GLY:N	2.83	0.41
17:d:256:VAL:HG13	17:d:257:ALA:N	2.35	0.41
17:d:487:ILE:HG23	17:d:488:GLU:N	2.35	0.41
17:d:562:ILE:HB	17:d:563:PRO:HD3	2.03	0.41
1:6:168:ILE:O	1:6:168:ILE:CG2	2.68	0.41
2:8:31:PHE:O	2:8:35:VAL:HG13	2.20	0.41
2:8:38:ASN:HD22	6:D:421:VAL:HG11	1.85	0.41
3:A:189:LEU:HD12	3:A:253:THR:CG2	2.48	0.41
4:B:44:ILE:O	4:B:48:GLU:OE1	2.37	0.41
4:B:103:LYS:O	4:B:107:THR:HG23	2.21	0.41
6:D:373:LEU:HD22	6:D:376:ARG:HD3	2.00	0.41
10:I:356:MET:HE3	10:I:356:MET:HB3	1.97	0.41
14:Q:34:PHE:HE2	14:R:61:LEU:HD13	1.83	0.41
14:U:35:GLY:O	14:V:36:CYS:SG	2.78	0.41
14:V:29:GLY:O	14:V:33:VAL:HG23	2.20	0.41
16:c:99:SER:HG	16:c:130:LYS:C	2.29	0.41
16:c:303:LEU:C	16:c:303:LEU:HD23	2.46	0.41
16:c:455:LEU:HG	16:c:455:LEU:O	2.21	0.41
17:d:168:PHE:CD1	17:d:334:ILE:HB	2.55	0.41
17:f:201:GLU:O	17:f:202:ARG:C	2.63	0.41
3:A:92:ILE:HD12	3:A:124:THR:CG2	2.51	0.41
14:Q:38:ILE:HG23	14:R:51:LEU:HD22	2.02	0.41
16:a:208:ILE:CD1	16:a:248:ALA:HB3	2.51	0.41
16:b:78:LEU:H	16:b:78:LEU:HD23	1.85	0.41
16:b:100:VAL:HG23	16:b:115:GLY:HA3	2.02	0.41
16:b:454:PHE:O	16:b:455:LEU:HB2	2.20	0.41
17:d:303:VAL:O	17:d:303:VAL:CG1	2.68	0.41
17:d:336:VAL:HG23	17:d:346:PRO:HG2	2.02	0.41
17:e:94:PRO:O	17:e:96:THR:HG23	2.20	0.41
17:e:196:PHE:HA	17:e:278:PHE:HB2	2.02	0.41
17:f:487:ILE:HG23	17:f:488:GLU:N	2.36	0.41
1:6:54:ILE:CD1	6:D:416:PHE:O	2.68	0.41
1:6:177:LEU:HD12	1:6:181:MET:HG2	2.02	0.41
3:A:47:ASN:OD1	3:A:48:LYS:N	2.53	0.41
6:D:381:SER:O	6:D:384:THR:OG1	2.39	0.41
8:G:69:LEU:HD12	8:G:122:LEU:HB2	2.03	0.41
10:I:114:THR:HG22	10:I:115:VAL:N	2.35	0.41
14:R:38:ILE:HG23	14:R:39:LEU:N	2.36	0.41
16:a:300:ILE:HG23	16:a:301:PHE:N	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:b:42:VAL:HG11	16:b:58:PHE:CE2	2.54	0.41
16:b:134:VAL:HG22	16:b:135:LYS:H	1.86	0.41
16:b:206:THR:HG23	16:b:206:THR:O	2.21	0.41
17:e:591:ILE:O	17:e:595:THR:HG22	2.20	0.41
1:6:219:LEU:O	1:6:223:ILE:HG12	2.20	0.41
3:A:200:SER:HB2	3:A:201:PRO:HD2	2.03	0.41
4:B:73:ILE:O	4:B:76:LEU:HB3	2.21	0.41
4:B:108:LEU:HD21	6:D:340:VAL:HG21	2.02	0.41
5:C:65:VAL:HA	5:C:82:TYR:O	2.21	0.41
5:C:114:LYS:NZ	9:H:6:ARG:CD	2.83	0.41
10:L:153:MET:CE	10:L:156:LEU:HD23	2.51	0.41
14:W:34:PHE:CZ	14:X:61:LEU:HD12	2.55	0.41
15:Z:171:GLU:O	15:Z:175:LEU:HG	2.20	0.41
16:c:305:SER:O	16:c:309:GLU:HB2	2.20	0.41
17:e:199:VAL:HG13	17:e:199:VAL:O	2.21	0.41
17:e:561:ALA:O	17:e:565:ALA:HB3	2.19	0.41
17:f:350:PHE:CE1	17:f:356:THR:HG21	2.56	0.41
17:f:369:TYR:O	17:f:370:PRO:C	2.63	0.41
1:6:86:PHE:CD1	1:6:89:VAL:CG2	3.02	0.41
2:8:52:PHE:C	2:8:52:PHE:CD2	2.99	0.41
3:A:38:MET:SD	3:A:255:MET:HG3	2.61	0.41
6:D:351:SER:O	6:D:355:GLU:OE1	2.38	0.41
6:D:351:SER:O	6:D:354:TYR:N	2.54	0.41
6:D:375:GLN:O	6:D:379:LEU:HD23	2.20	0.41
7:E:34:ARG:NH2	17:f:497:LEU:C	2.79	0.41
8:G:164:PHE:CZ	8:G:173:LEU:HD11	2.56	0.41
10:I:215:PHE:N	10:I:215:PHE:CD1	2.88	0.41
10:L:370:MET:O	10:L:391:SER:HA	2.21	0.41
14:S:24:ILE:HD11	14:T:21:SER:O	2.21	0.41
14:X:37:LEU:HD23	14:X:37:LEU:C	2.46	0.41
16:a:438:ILE:HG23	16:a:471:PHE:CE2	2.55	0.41
16:c:67:LEU:CD1	16:c:283:MET:HE3	2.51	0.41
17:e:74:ILE:HD13	17:e:292:VAL:HG21	2.02	0.41
17:f:58:LEU:HD13	17:f:77:ASP:HB3	2.03	0.41
4:B:74:ASN:O	4:B:77:PHE:HB3	2.20	0.41
6:D:448:MET:HE2	6:D:453:TYR:N	2.36	0.41
10:I:133:GLY:O	10:I:137:GLY:N	2.54	0.41
10:L:45:GLN:O	10:L:49:VAL:HG23	2.21	0.41
10:L:156:LEU:HD21	10:L:176:ALA:HB1	2.02	0.41
16:b:68:ASN:HB2	16:b:75:SER:HB2	2.03	0.41
16:b:175:GLN:O	16:b:175:GLN:HG3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:e:398:VAL:O	17:e:402:LEU:HD23	2.21	0.41
2:8:43:ASN:HA	2:8:46:TYR:HB3	2.03	0.40
2:8:49:TRP:O	2:8:50:TYR:C	2.62	0.40
2:8:76:ILE:HD13	15:Z:186:LEU:HD22	2.02	0.40
7:E:10:LEU:HD22	17:d:411:ILE:HG13	2.03	0.40
16:c:268:ILE:HG21	16:c:270:TYR:CZ	2.56	0.40
17:e:340:ASP:OD2	17:e:343:ASP:N	2.53	0.40
17:e:369:TYR:HB3	17:e:370:PRO:HD3	2.03	0.40
17:f:99:VAL:HG21	17:f:266:TYR:CB	2.51	0.40
17:f:140:GLY:HA3	17:f:324:MET:HE1	2.03	0.40
2:8:49:TRP:C	2:8:51:PHE:N	2.79	0.40
3:A:93:VAL:HB	3:A:180:LEU:CD1	2.52	0.40
6:D:355:GLU:HA	6:D:358:LEU:HB2	2.03	0.40
7:E:18:GLU:OE2	7:E:18:GLU:C	2.64	0.40
12:K:47:GLY:O	12:K:51:VAL:HG23	2.22	0.40
10:L:193:VAL:HG12	10:L:194:GLY:N	2.36	0.40
16:a:44:ILE:HG22	16:a:45:GLU:N	2.36	0.40
16:a:338:ALA:HB3	16:a:341:PRO:HD2	2.03	0.40
1:6:40:PHE:O	1:6:44:PHE:CD2	2.75	0.40
5:C:99:VAL:O	5:C:99:VAL:HG13	2.21	0.40
10:I:57:GLY:O	10:I:58:ASN:C	2.65	0.40
14:R:46:ASN:OD1	14:R:47:LEU:N	2.54	0.40
16:c:169:LEU:HD12	16:c:170:VAL:H	1.86	0.40
17:d:180:MET:HE2	17:d:180:MET:CA	2.51	0.40
17:f:478:GLU:N	17:f:479:PRO:HD2	2.35	0.40
2:8:36:PHE:C	2:8:38:ASN:N	2.78	0.40
3:A:272:LYS:HD3	3:A:272:LYS:O	2.20	0.40
5:C:23:LEU:HD22	5:C:99:VAL:HG12	2.03	0.40
6:D:360:GLU:C	6:D:362:PRO:CD	2.95	0.40
10:I:156:LEU:CD2	10:I:176:ALA:HB1	2.52	0.40
16:c:487:LEU:HD12	16:c:487:LEU:N	2.36	0.40
16:c:501:VAL:HG13	16:c:502:VAL:N	2.36	0.40
17:f:261:LEU:HD21	17:f:320:ILE:CG1	2.52	0.40
1:6:168:ILE:O	1:6:168:ILE:HG22	2.20	0.40
2:8:51:PHE:CE2	15:Z:212:MET:CE	3.05	0.40
8:G:168:PRO:HG2	8:G:173:LEU:HD21	2.02	0.40
14:V:16:SER:HA	14:V:76:ILE:HG21	2.02	0.40
14:W:6:ILE:HD12	14:X:4:LEU:CD2	2.51	0.40
16:b:151:THR:HG23	16:b:185:ALA:HB2	2.03	0.40
17:e:460:ASP:HB3	17:e:486:ASP:OD1	2.21	0.40
17:e:484:VAL:HG13	17:e:485:GLY:N	2.37	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:f:33:VAL:O	17:f:73:THR:OG1	2.24	0.40
17:f:145:ILE:HD12	17:f:159:TYR:O	2.21	0.40
17:f:219:ILE:O	17:f:220:LYS:C	2.64	0.40
17:f:339:ASP:O	17:f:339:ASP:CG	2.64	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	
1	6	204/208 (98%)	192 (94%)	12 (6%)	0	100	100
2	8	124/142 (87%)	120 (97%)	4 (3%)	0	100	100
3	A	280/326 (86%)	272 (97%)	8 (3%)	0	100	100
4	B	119/124 (96%)	115 (97%)	4 (3%)	0	100	100
5	C	152/191 (80%)	143 (94%)	9 (6%)	0	100	100
6	D	125/499 (25%)	120 (96%)	4 (3%)	1 (1%)	16	52
7	E	25/137 (18%)	25 (100%)	0	0	100	100
8	G	192/431 (44%)	178 (93%)	14 (7%)	0	100	100
9	H	43/45 (96%)	41 (95%)	2 (5%)	0	100	100
10	I	372/454 (82%)	361 (97%)	11 (3%)	0	100	100
10	L	394/454 (87%)	384 (98%)	10 (2%)	0	100	100
11	J	29/92 (32%)	29 (100%)	0	0	100	100
12	K	43/94 (46%)	41 (95%)	2 (5%)	0	100	100
13	M	23/92 (25%)	20 (87%)	3 (13%)	0	100	100
14	P	77/79 (98%)	76 (99%)	1 (1%)	0	100	100
14	Q	77/79 (98%)	76 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
14	R	77/79 (98%)	74 (96%)	3 (4%)	0	100	100
14	S	77/79 (98%)	76 (99%)	1 (1%)	0	100	100
14	T	77/79 (98%)	76 (99%)	1 (1%)	0	100	100
14	U	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
14	V	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
14	W	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
14	X	77/79 (98%)	75 (97%)	2 (3%)	0	100	100
15	Z	140/142 (99%)	133 (95%)	7 (5%)	0	100	100
16	a	479/522 (92%)	454 (95%)	25 (5%)	0	100	100
16	b	488/522 (94%)	459 (94%)	29 (6%)	0	100	100
16	c	486/522 (93%)	461 (95%)	25 (5%)	0	100	100
17	d	545/687 (79%)	512 (94%)	33 (6%)	0	100	100
17	e	563/687 (82%)	534 (95%)	29 (5%)	0	100	100
17	f	577/687 (84%)	537 (93%)	39 (7%)	1 (0%)	43	77
All	All	6096/7769 (78%)	5809 (95%)	285 (5%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	D	361	TYR
17	f	303	VAL

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all 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	
1	6	192/192 (100%)	192 (100%)	0	100	100
2	8	123/140 (88%)	123 (100%)	0	100	100
3	A	235/272 (86%)	235 (100%)	0	100	100
4	B	115/118 (98%)	115 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	C	124/152 (82%)	124 (100%)	0	100	100
6	D	118/419 (28%)	118 (100%)	0	100	100
7	E	23/119 (19%)	23 (100%)	0	100	100
8	G	170/369 (46%)	170 (100%)	0	100	100
9	H	35/35 (100%)	35 (100%)	0	100	100
10	I	307/362 (85%)	307 (100%)	0	100	100
10	L	318/362 (88%)	318 (100%)	0	100	100
11	J	26/79 (33%)	26 (100%)	0	100	100
12	K	38/81 (47%)	38 (100%)	0	100	100
13	M	21/76 (28%)	21 (100%)	0	100	100
14	P	60/60 (100%)	60 (100%)	0	100	100
14	Q	60/60 (100%)	60 (100%)	0	100	100
14	R	60/60 (100%)	60 (100%)	0	100	100
14	S	60/60 (100%)	60 (100%)	0	100	100
14	T	60/60 (100%)	60 (100%)	0	100	100
14	U	60/60 (100%)	59 (98%)	1 (2%)	53	67
14	V	60/60 (100%)	60 (100%)	0	100	100
14	W	60/60 (100%)	60 (100%)	0	100	100
14	X	60/60 (100%)	60 (100%)	0	100	100
15	Z	118/118 (100%)	118 (100%)	0	100	100
16	a	413/448 (92%)	413 (100%)	0	100	100
16	b	418/448 (93%)	418 (100%)	0	100	100
16	c	416/448 (93%)	416 (100%)	0	100	100
17	d	450/547 (82%)	450 (100%)	0	100	100
17	e	470/547 (86%)	470 (100%)	0	100	100
17	f	476/547 (87%)	476 (100%)	0	100	100
All	All	5146/6419 (80%)	5145 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
14	U	12	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
1	6	180	ASN
2	8	63	ASN
2	8	105	GLN
3	A	50	GLN
3	A	64	GLN
3	A	68	GLN
3	A	106	ASN
3	A	173	GLN
3	A	278	GLN
5	C	100	ASN
6	D	338	ASN
6	D	418	ASN
8	G	229	GLN
9	H	28	GLN
10	I	227	ASN
10	I	243	ASN
10	I	355	HIS
10	L	418	GLN
15	Z	191	GLN
15	Z	238	GLN
15	Z	250	GLN
16	a	188	ASN
16	a	226	ASN
16	b	188	ASN
16	c	60	ASN
16	c	175	GLN
16	c	210	GLN
16	c	497	ASN
17	d	54	HIS
17	d	435	GLN
17	d	603	HIS
17	e	52	GLN
17	f	83	GLN
17	f	287	GLN
17	f	352	HIS
17	f	443	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 3 are monoatomic - leaving 5 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$
22	ATP	c	601	23	32,33,33	0.58	0	48,52,52	0.75	1 (2%)
22	ATP	b	602	23	32,33,33	0.79	2 (6%)	48,52,52	0.77	2 (4%)
22	ATP	a	601	-	32,33,33	0.59	0	48,52,52	0.76	2 (4%)
24	ADP	d	701	-	28,29,29	1.36	5 (17%)	43,45,45	1.87	11 (25%)
24	ADP	f	702	23	28,29,29	1.37	5 (17%)	43,45,45	1.85	10 (23%)

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
22	ATP	c	601	23	-	0/22/38/38	0/3/3/3
22	ATP	b	602	23	-	2/22/38/38	0/3/3/3
22	ATP	a	601	-	-	3/22/38/38	0/3/3/3
24	ADP	d	701	-	-	2/16/32/32	0/3/3/3
24	ADP	f	702	23	-	2/16/32/32	0/3/3/3

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	f	702	ADP	C5-C4	4.44	1.47	1.39
24	d	701	ADP	C5-C4	4.33	1.46	1.39
22	b	602	ATP	PB-O3B	-3.21	1.56	1.59
24	f	702	ADP	C5-C6	2.58	1.48	1.41
24	d	701	ADP	C5-N7	-2.54	1.34	1.39
24	d	701	ADP	C5-C6	2.43	1.47	1.41
24	f	702	ADP	C5-N7	-2.42	1.34	1.39
24	d	701	ADP	C8-N7	2.32	1.36	1.31
24	f	702	ADP	C8-N7	2.30	1.36	1.31
22	b	602	ATP	PA-O3A	-2.21	1.57	1.59
24	d	701	ADP	C4-N9	-2.12	1.33	1.37
24	f	702	ADP	C4-N9	-2.11	1.33	1.37

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
24	f	702	ADP	C5-C4-N3	-5.54	119.09	126.72
24	d	701	ADP	C5-C4-N3	-5.46	119.20	126.72
24	d	701	ADP	N3-C4-N9	4.41	134.67	127.17
24	f	702	ADP	N3-C4-N9	4.41	134.67	127.17
24	d	701	ADP	N3-C2-N1	-3.87	122.73	128.58
24	f	702	ADP	N3-C2-N1	-3.86	122.73	128.58
24	f	702	ADP	C2-N3-C4	3.86	121.25	111.83
24	d	701	ADP	C2-N3-C4	3.79	121.08	111.83
24	f	702	ADP	C4-C5-N7	-3.44	106.65	110.58
24	d	701	ADP	C4-C5-N7	-3.20	106.92	110.58
24	f	702	ADP	C4-N9-C8	2.98	108.87	105.74
24	d	701	ADP	C4-N9-C8	2.94	108.83	105.74
24	f	702	ADP	C5-N7-C8	2.62	107.57	103.45
24	d	701	ADP	C3'-C2'-C1'	2.58	106.34	101.46
24	d	701	ADP	C5-N7-C8	2.48	107.34	103.45
24	f	702	ADP	C6-C5-N7	2.32	136.56	132.09
24	f	702	ADP	N9-C8-N7	-2.30	110.67	113.94
24	d	701	ADP	N9-C8-N7	-2.23	110.78	113.94
24	d	701	ADP	C6-C5-N7	2.15	136.24	132.09
24	f	702	ADP	C2-N1-C6	2.13	122.23	118.73
24	d	701	ADP	C2-N1-C6	2.13	122.23	118.73
22	a	601	ATP	O3'-C3'-C4'	-2.10	105.06	111.08
22	b	602	ATP	O2'-C2'-C3'	-2.05	105.26	111.82
22	c	601	ATP	O3'-C3'-C4'	-2.04	105.22	111.08
22	b	602	ATP	O3'-C3'-C2'	-2.03	105.31	111.82
22	a	601	ATP	O3'-C3'-C2'	-2.01	105.36	111.82

There are no chirality outliers.

All (9) torsion outliers are listed below:

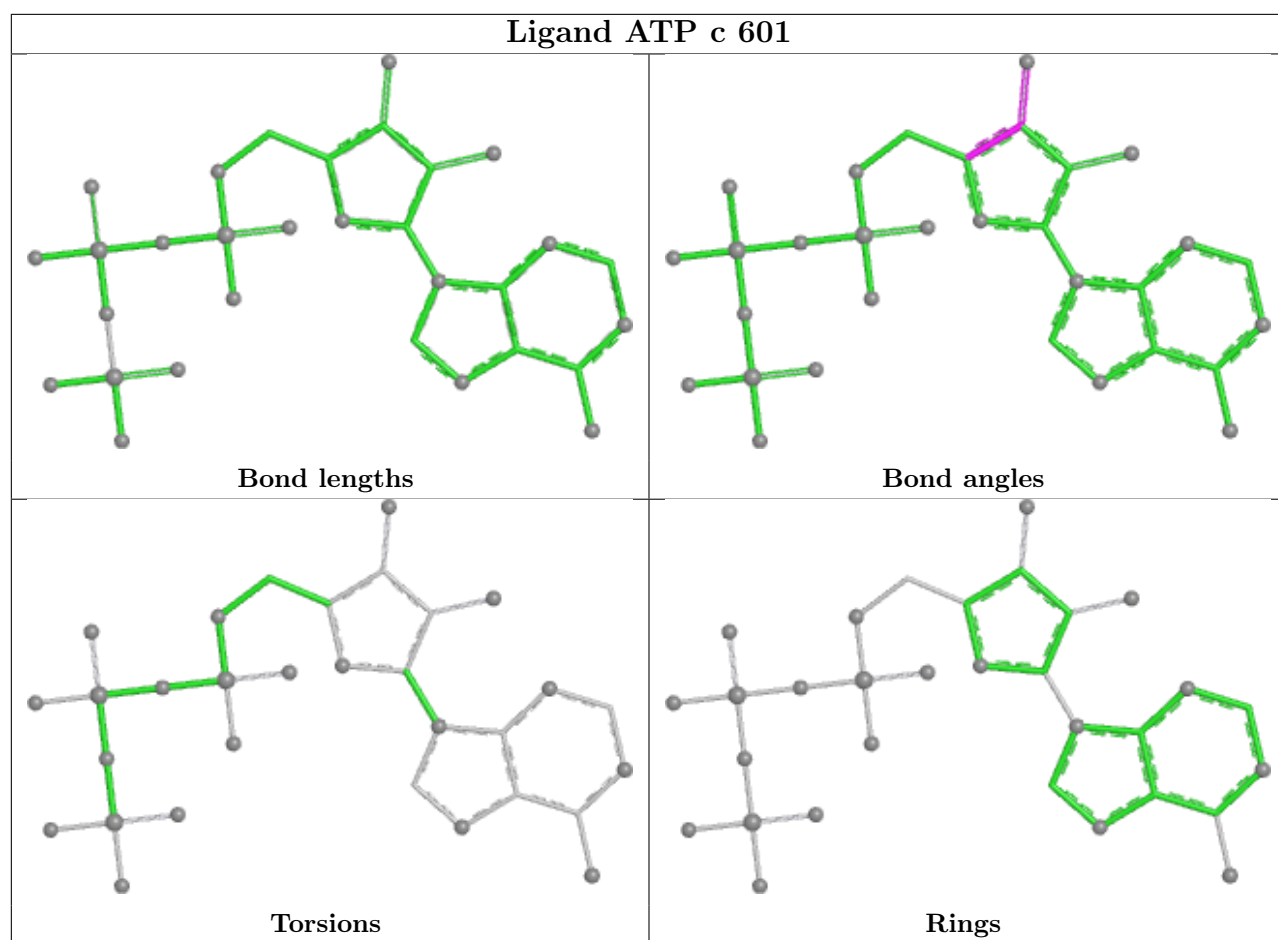
Mol	Chain	Res	Type	Atoms
22	a	601	ATP	PB-O3B-PG-O2G
22	b	602	ATP	O4'-C4'-C5'-O5'
24	f	702	ADP	C5'-O5'-PA-O3A
24	d	701	ADP	C3'-C4'-C5'-O5'
22	b	602	ATP	C3'-C4'-C5'-O5'
24	d	701	ADP	O4'-C4'-C5'-O5'
22	a	601	ATP	PA-O3A-PB-O1B
24	f	702	ADP	C5'-O5'-PA-O1A
22	a	601	ATP	PB-O3B-PG-O1G

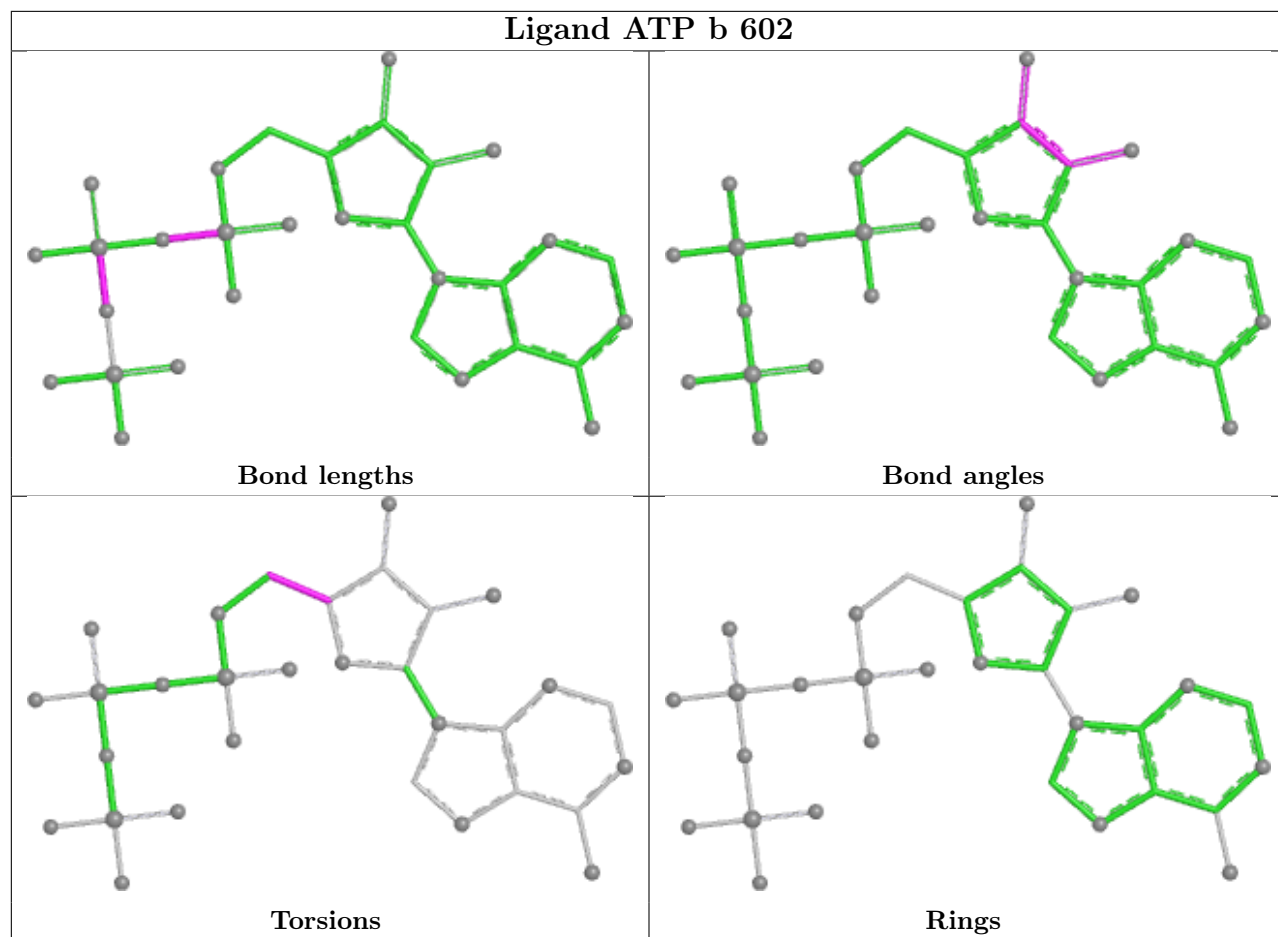
There are no ring outliers.

2 monomers are involved in 2 short contacts:

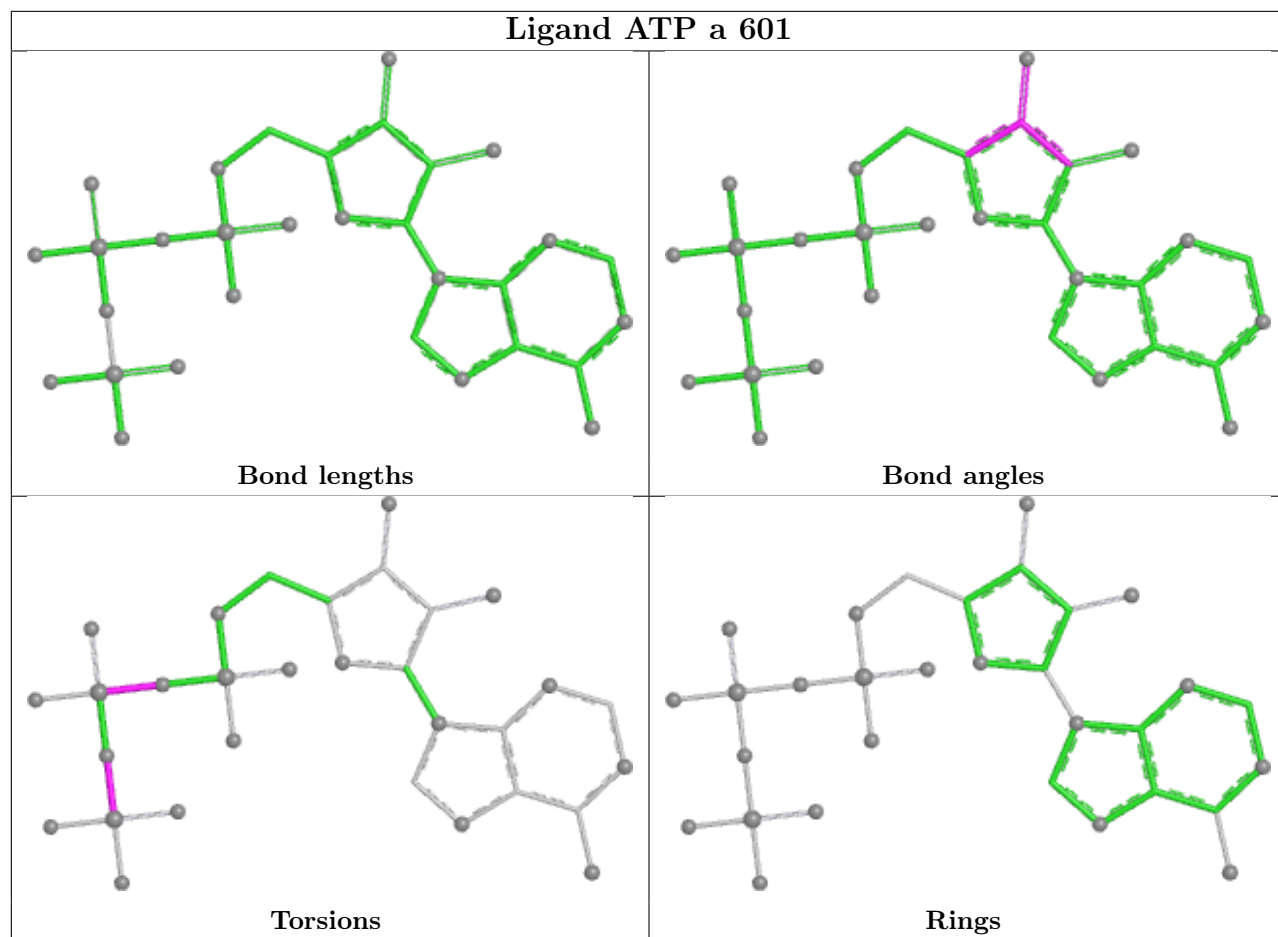
Mol	Chain	Res	Type	Clashes	Symm-Clashes
24	d	701	ADP	1	0
24	f	702	ADP	1	0

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 than 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.

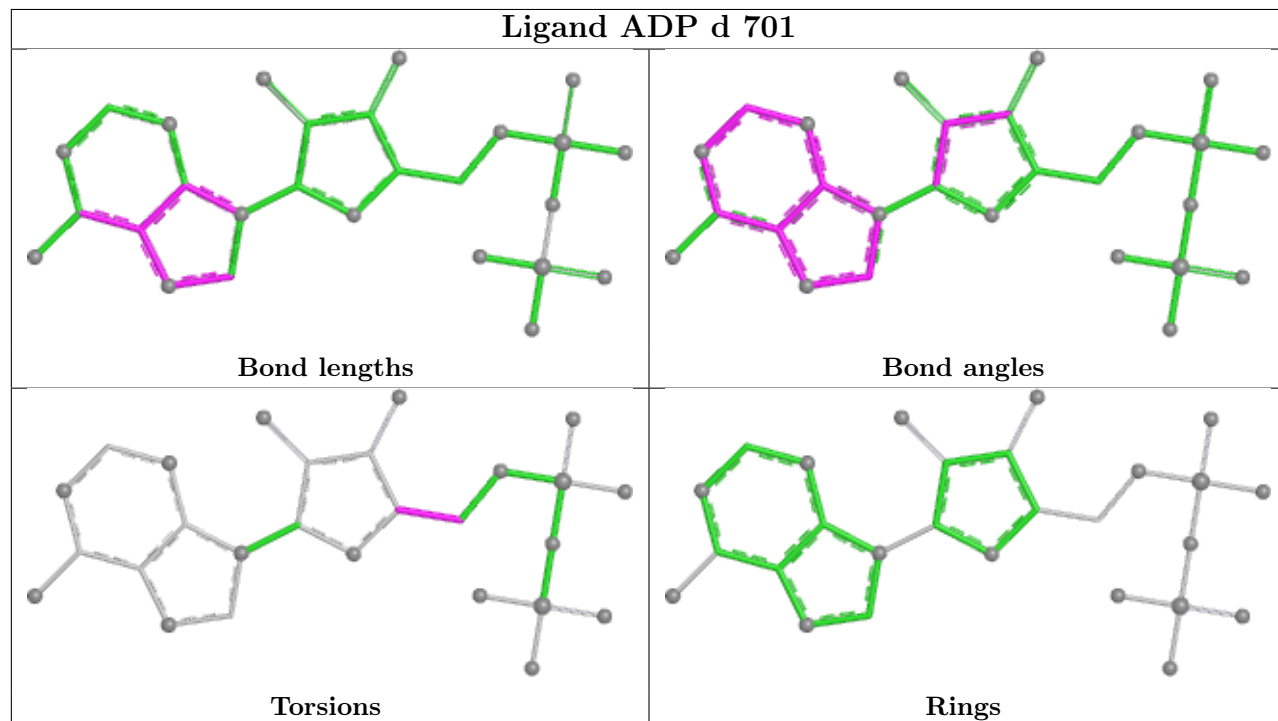


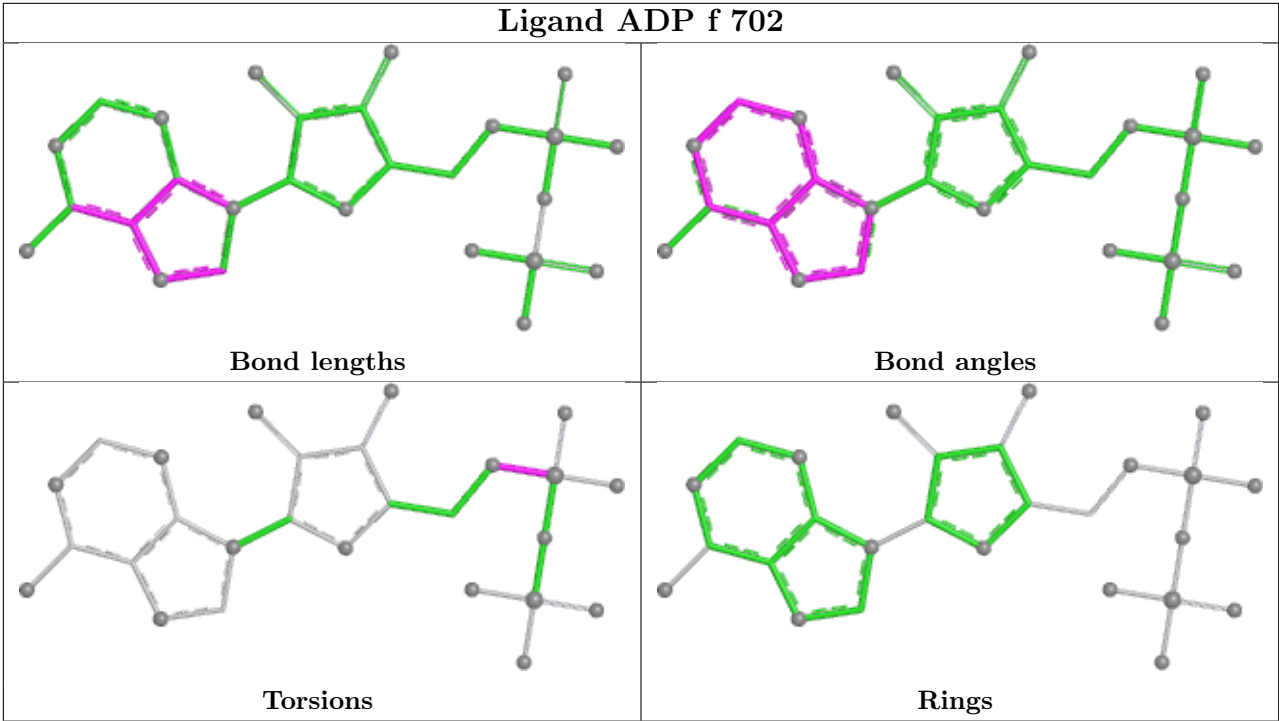


Ligand ATP a 601



Ligand ADP d 701





5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

The following chains have linkage breaks:

Mol	Chain	Number of breaks
18	1	5
19	2	4
1	6	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	2	143:UNK	C	160:UNK	N	71.74
1	1	69:UNK	C	81:UNK	N	49.61
1	2	43:UNK	C	52:UNK	N	27.68
1	1	89:UNK	C	117:UNK	N	19.10
1	1	125:UNK	C	135:UNK	N	16.94
1	2	69:UNK	C	78:UNK	N	16.71
1	6	141:PHE	C	153:PRO	N	14.84
1	2	21:UNK	C	28:UNK	N	14.60

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	1	19:UNK	C	37:UNK	N	12.15
1	1	49:UNK	C	59:UNK	N	10.20

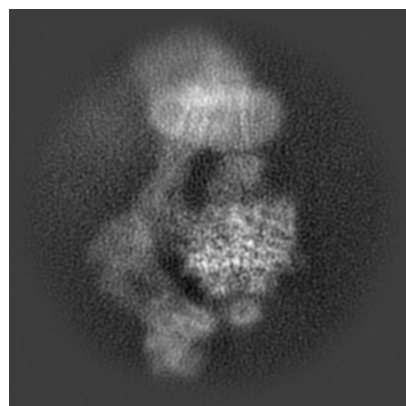
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-74153. These allow visual inspection of the internal detail of the map and identification of artifacts.

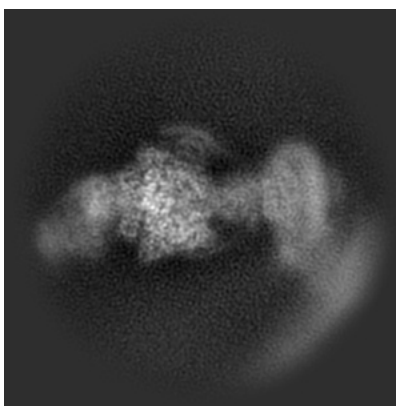
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

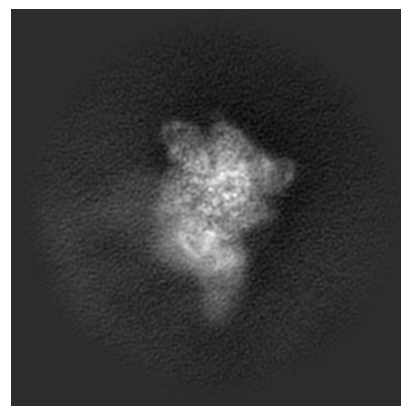
6.1.1 Primary map



X

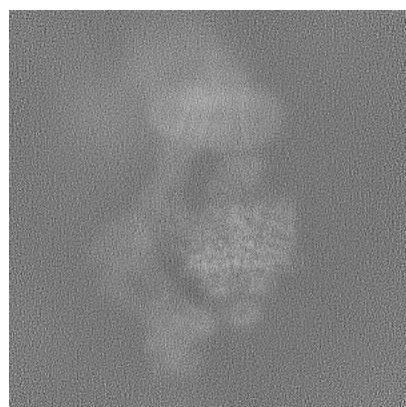


Y

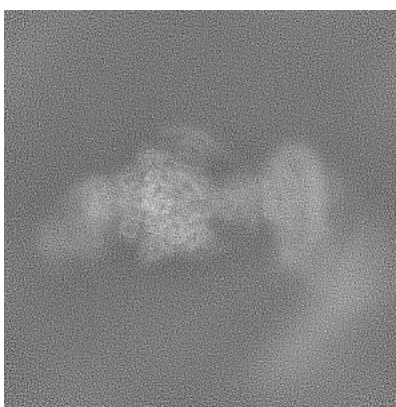


Z

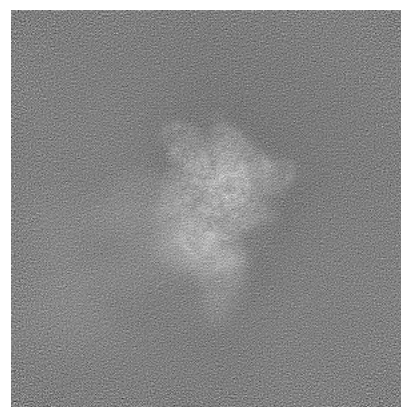
6.1.2 Raw map



X



Y

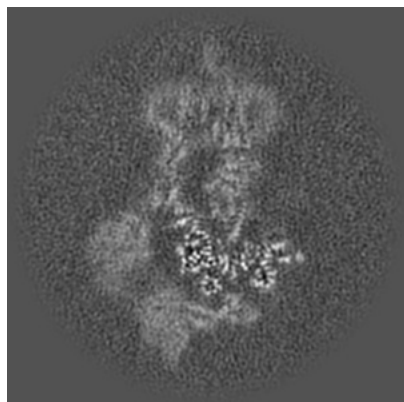


Z

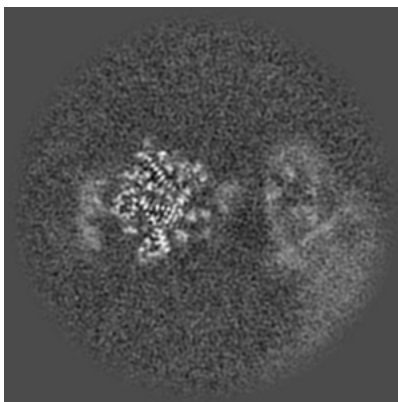
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

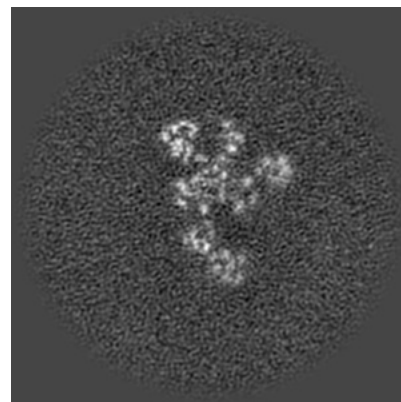
6.2.1 Primary map



X Index: 220

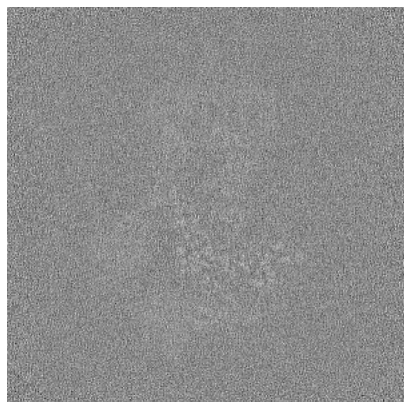


Y Index: 220

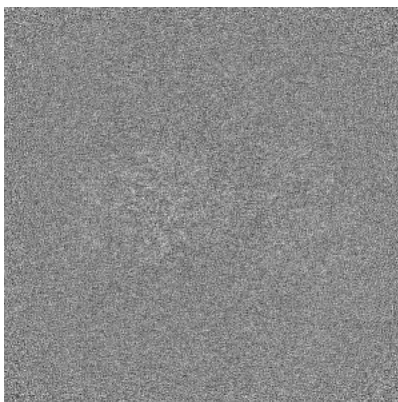


Z Index: 220

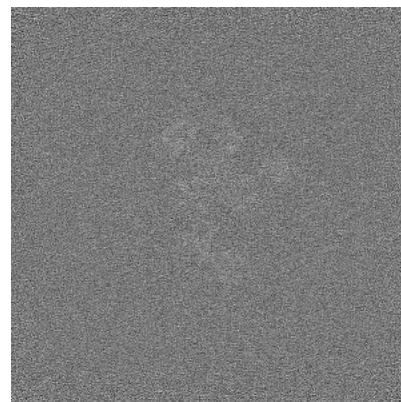
6.2.2 Raw map



X Index: 220



Y Index: 220

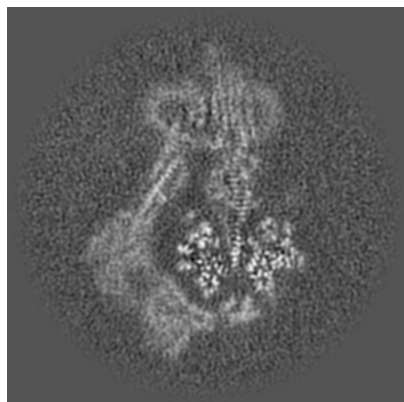


Z Index: 220

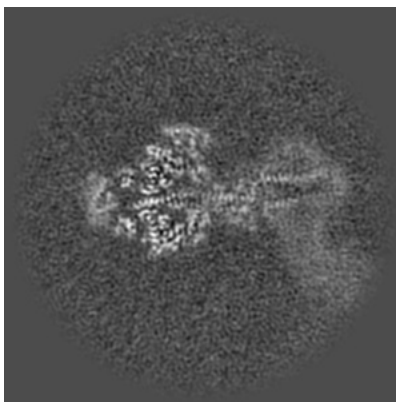
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

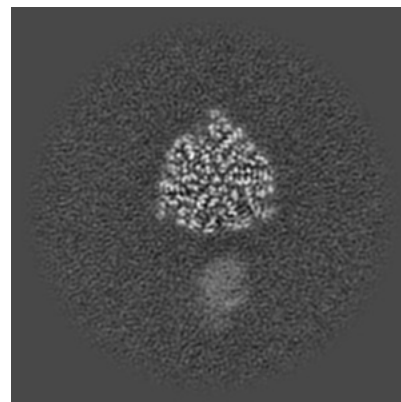
6.3.1 Primary map



X Index: 227

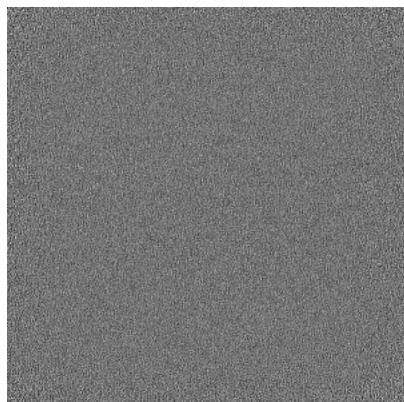


Y Index: 250

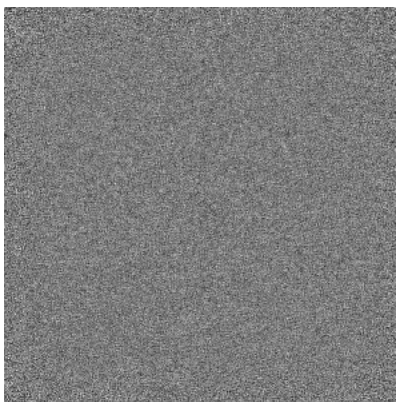


Z Index: 162

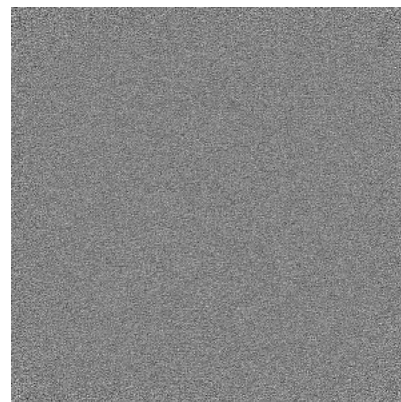
6.3.2 Raw map



X Index: 0



Y Index: 0

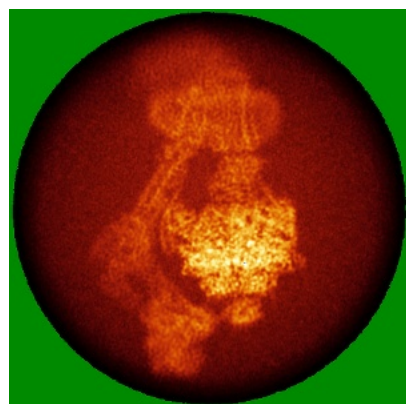


Z Index: 0

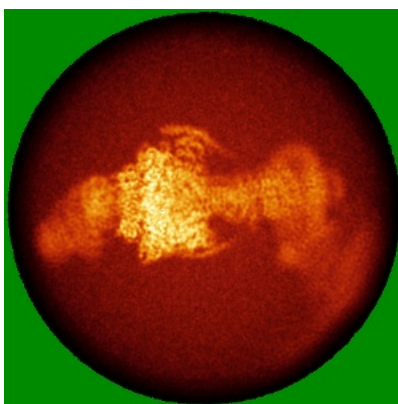
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

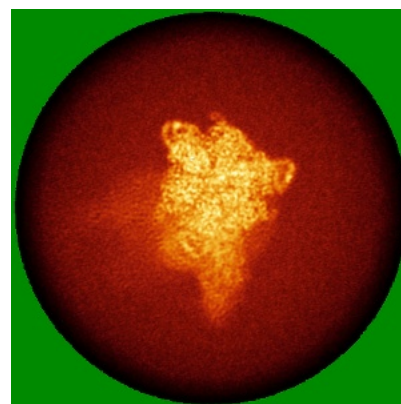
6.4.1 Primary map



X

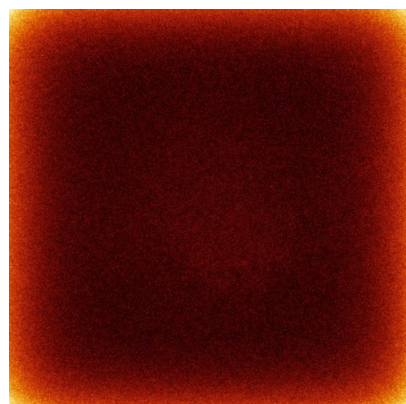


Y

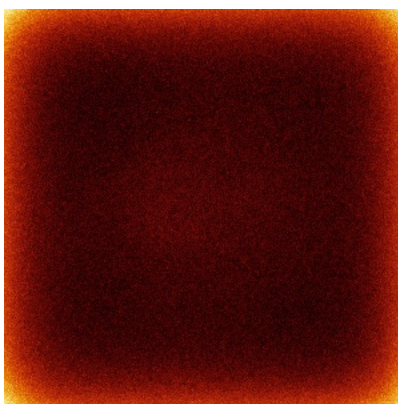


Z

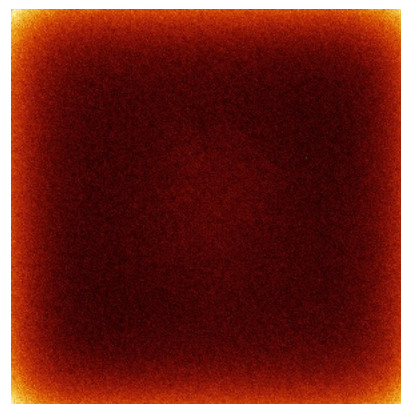
6.4.2 Raw map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

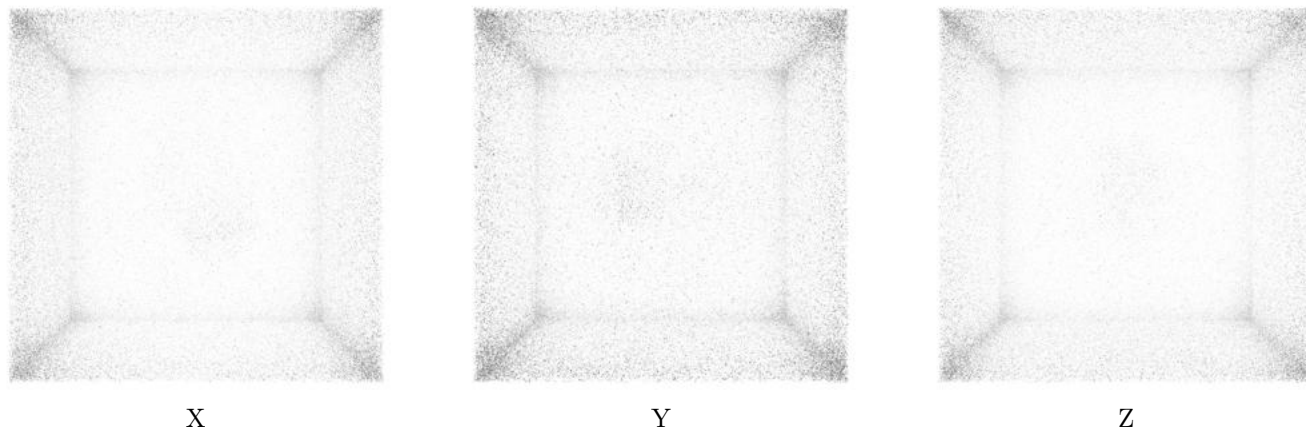
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.111. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

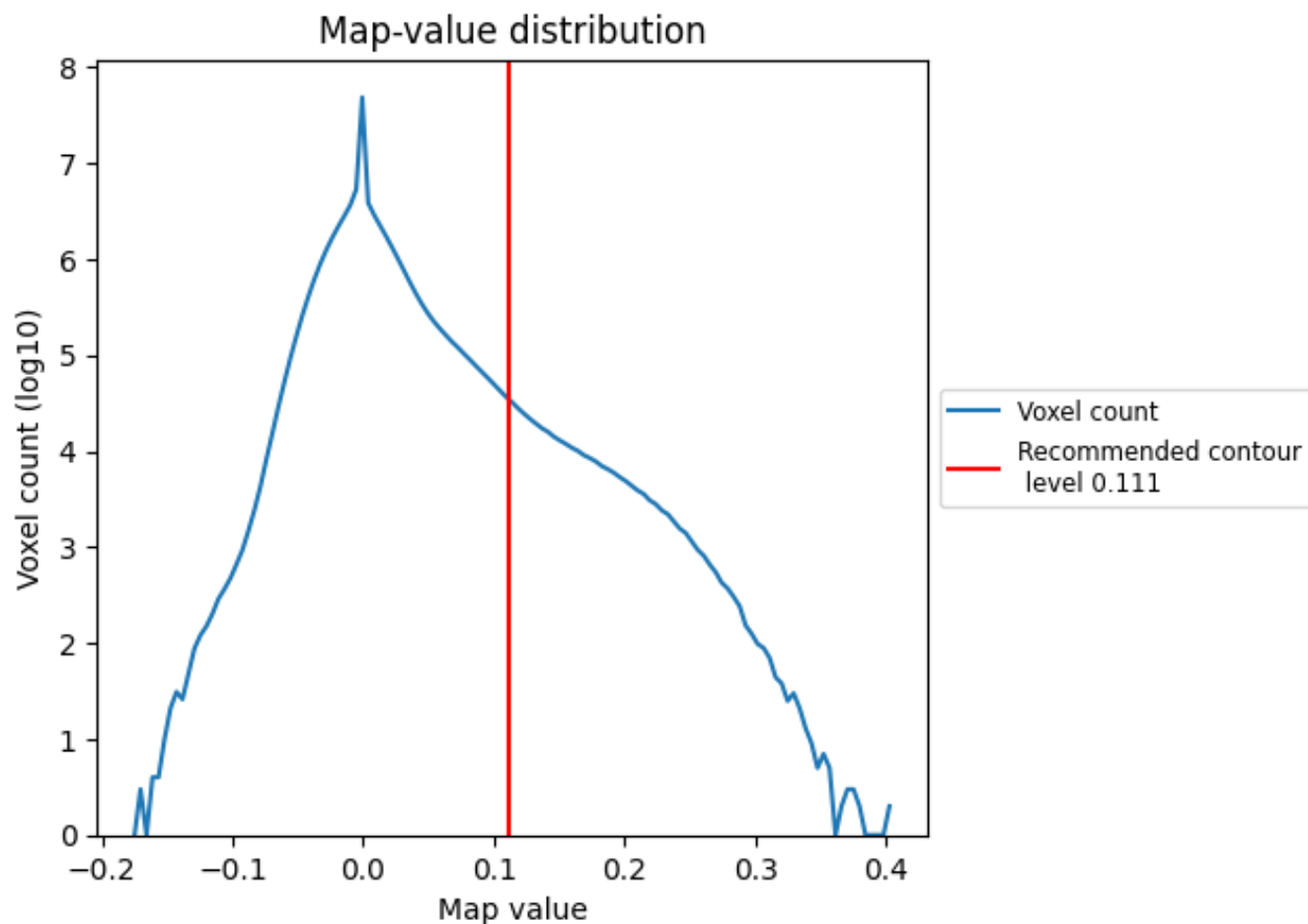
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

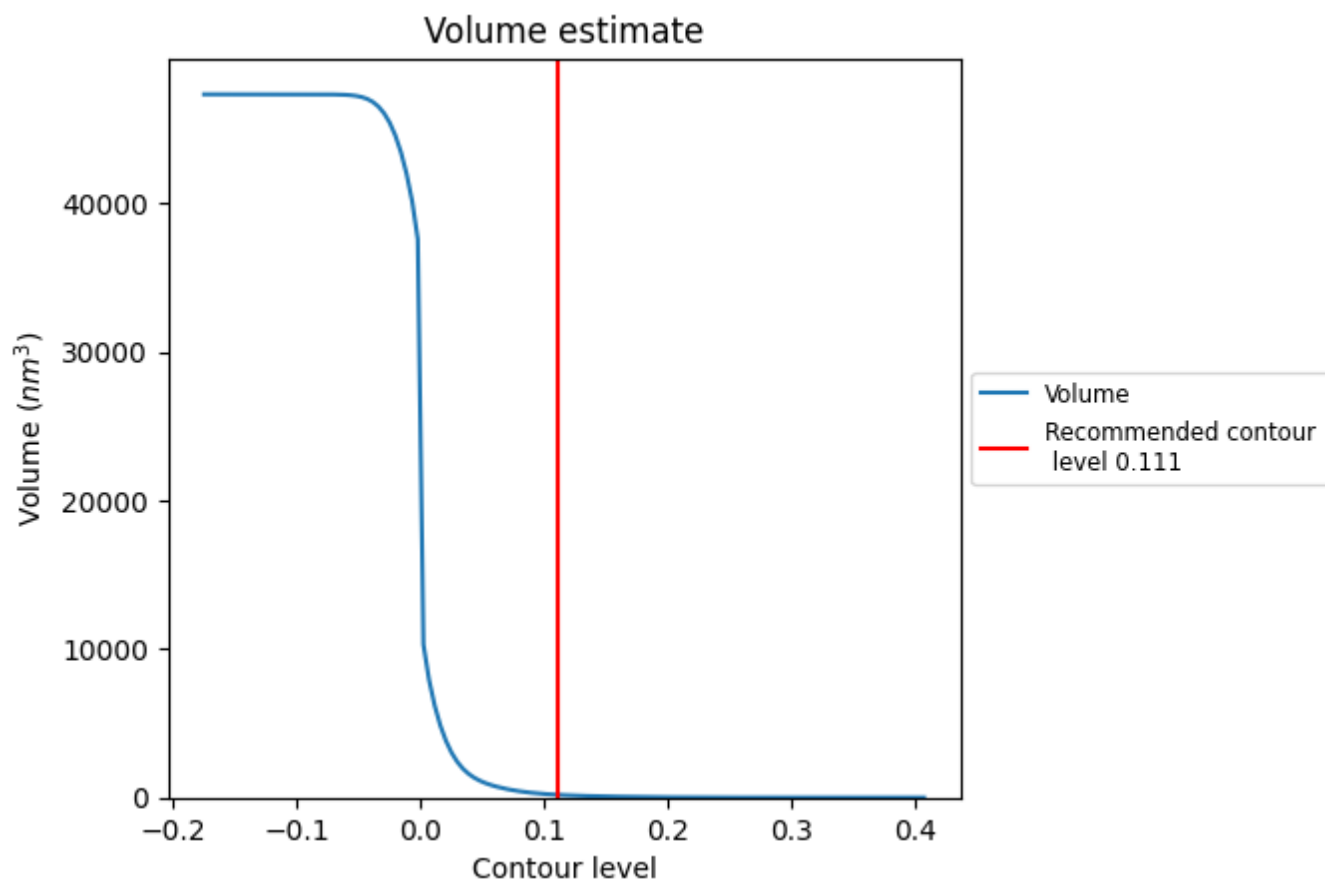
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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.

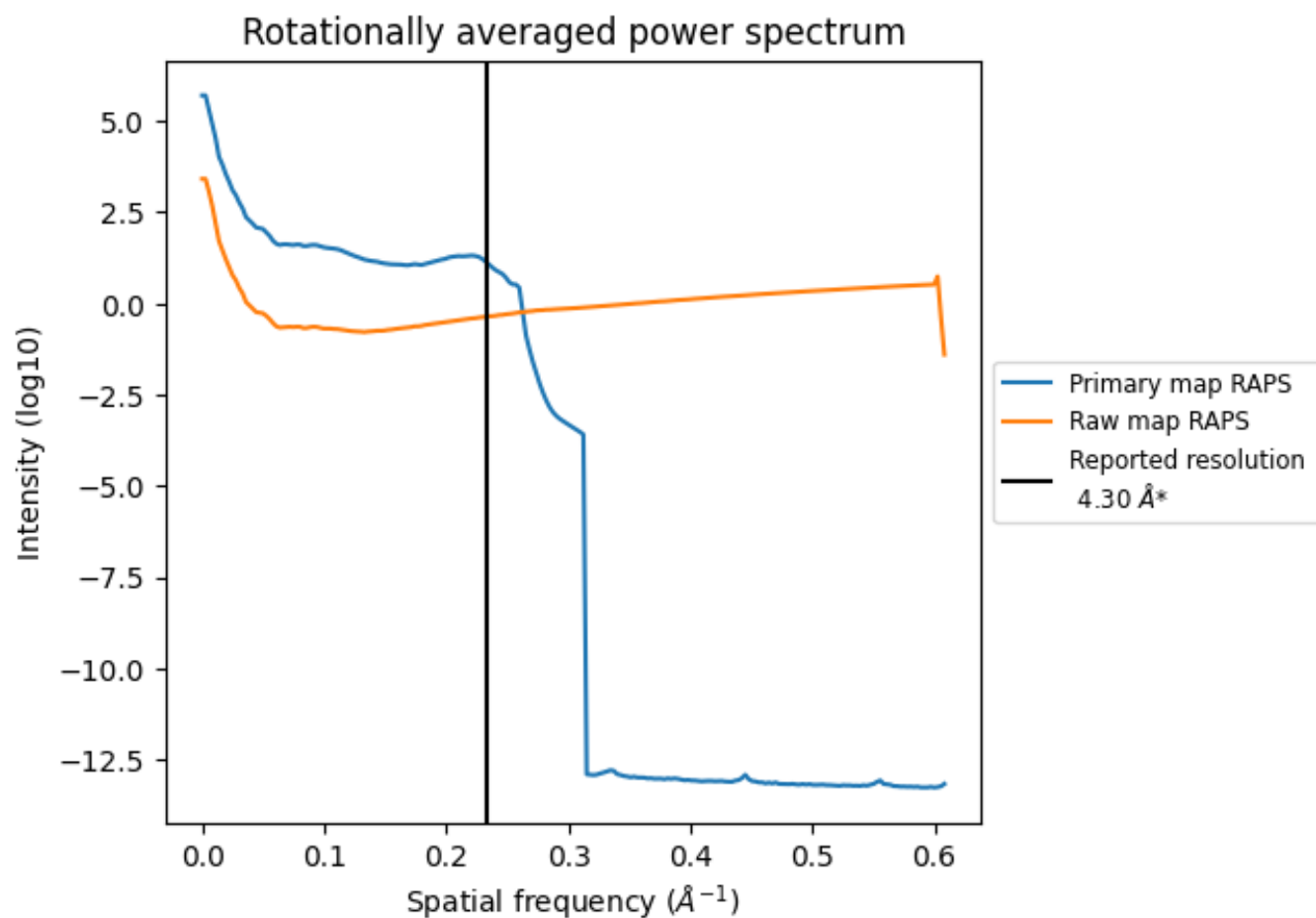
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 184 nm³; 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 ⓘ

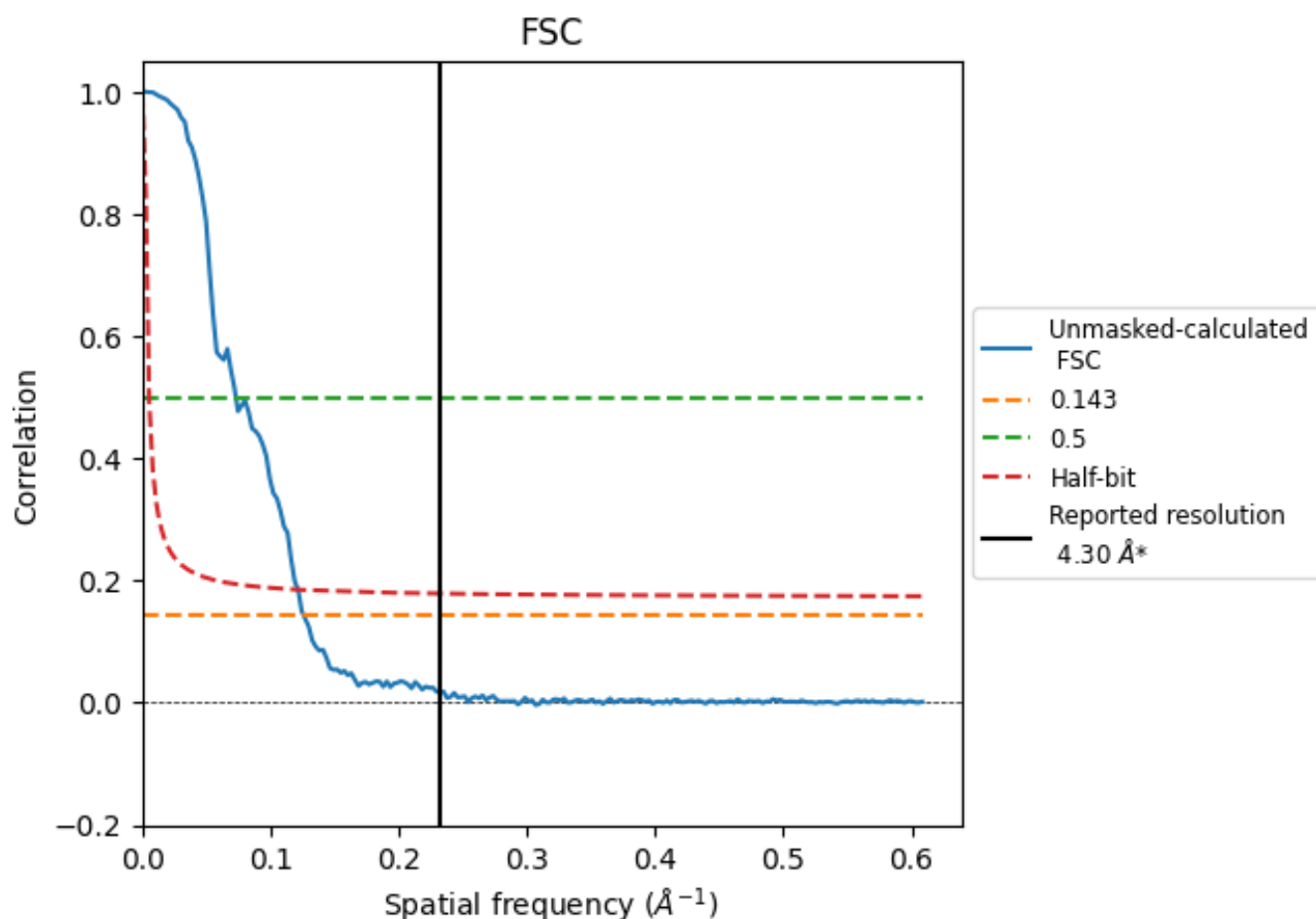


*Reported resolution corresponds to spatial frequency of 0.233 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.233 Å⁻¹

8.2 Resolution estimates [i](#)

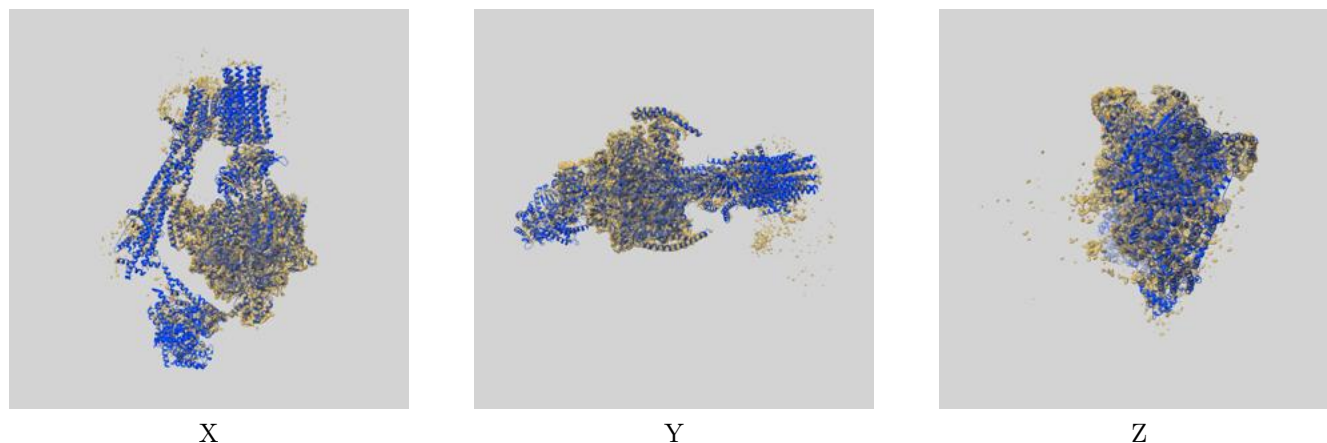
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.30	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	7.94	13.70	8.24

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.94 differs from the reported value 4.3 by more than 10 %

9 Map-model fit [i](#)

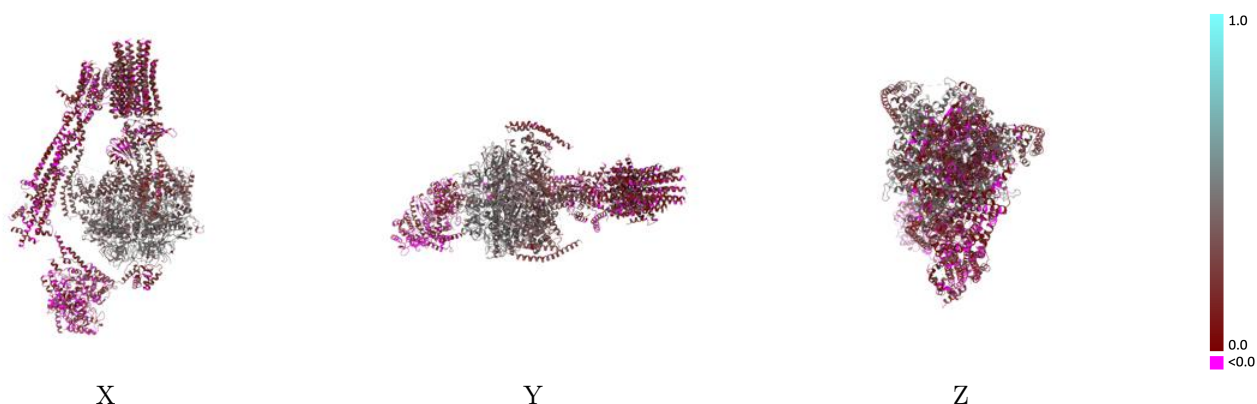
This section contains information regarding the fit between EMDB map EMD-74153 and PDB model 9ZFT. Per-residue inclusion information can be found in [section 3](#) on [page 14](#).

9.1 Map-model overlay [i](#)



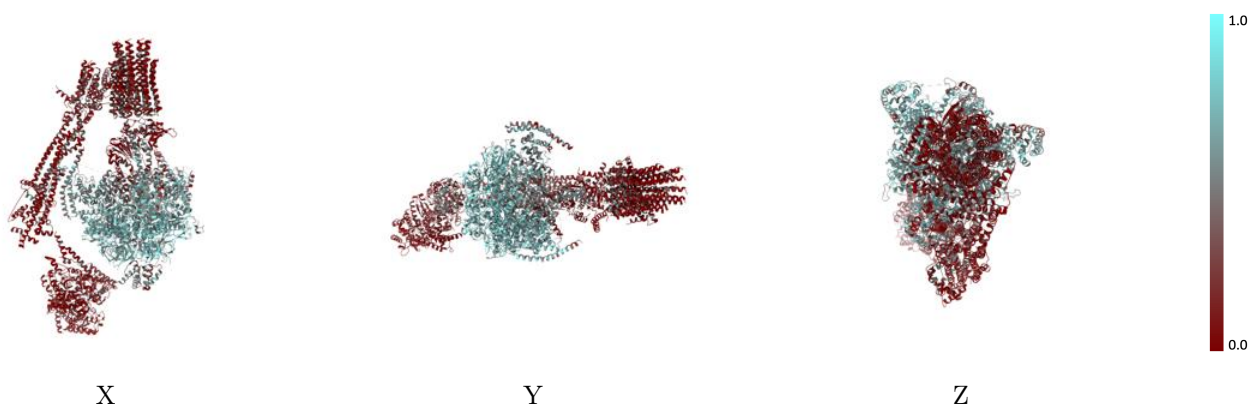
The images above show the 3D surface view of the map at the recommended contour level 0.111 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



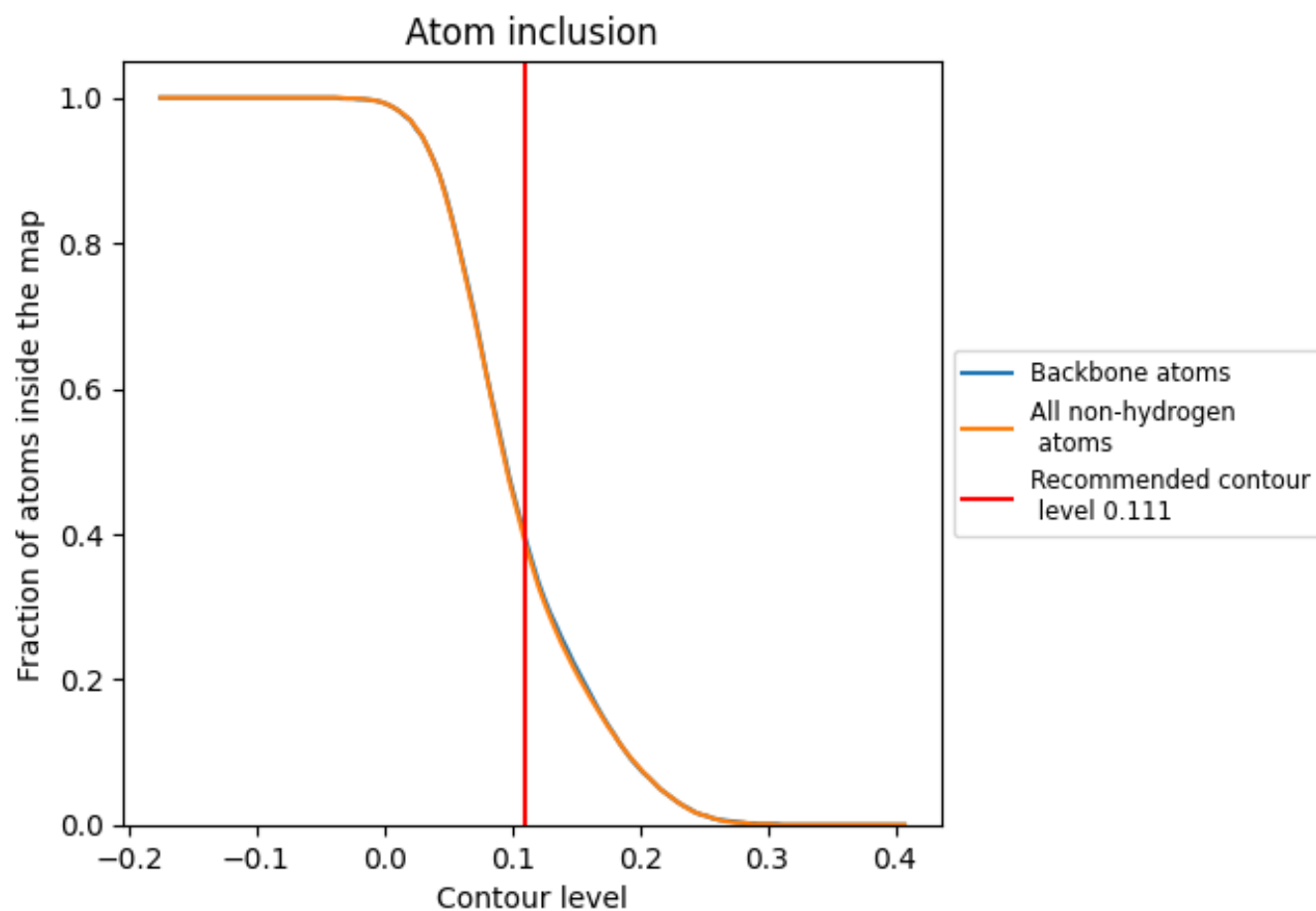
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



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 (0.111).

9.4 Atom inclusion [i](#)



At the recommended contour level, 39% of all backbone atoms, 38% 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 (0.111) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3850	 0.2680
1	 0.0850	 0.1440
2	 0.2230	 0.1850
3	 0.0000	 0.0490
5	 0.0530	 0.0970
6	 0.1870	 0.1500
8	 0.1940	 0.1280
A	 0.3380	 0.2500
B	 0.2270	 0.1450
C	 0.1040	 0.1310
D	 0.1880	 0.1130
E	 0.1670	 0.3070
G	 0.3290	 0.1730
H	 0.1370	 0.1530
I	 0.0360	 0.0480
J	 0.1470	 0.1280
K	 0.1850	 0.1310
L	 0.0640	 0.0720
M	 0.0890	 0.0780
P	 0.1490	 0.2150
Q	 0.1630	 0.1660
R	 0.1490	 0.1940
S	 0.1340	 0.1820
T	 0.1750	 0.2030
U	 0.2220	 0.2250
V	 0.1720	 0.1880
W	 0.1290	 0.1970
X	 0.1270	 0.1840
Z	 0.0700	 0.1160
a	 0.6280	 0.3940
b	 0.6730	 0.4210
c	 0.6410	 0.4030
d	 0.5680	 0.3750
e	 0.6000	 0.3780
f	 0.6150	 0.3900

