



Full wwPDB EM Validation Report ⓘ

Mar 8, 2026 – 12:46 AM UTC

PDB ID : 7XTI / pdb_00007xti
EMDB ID : EMD-33450
Title : RNA polymerase II elongation complex transcribing a nucleosome (EC58hex)
Authors : Ehara, H.; Kujirai, T.; Shirouzu, M.; Kurumizaka, H.; Sekine, S.
Deposited on : 2022-05-17
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.dev132
MolProbity : 4-5-2 with Phenix2.0
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) : 2.49

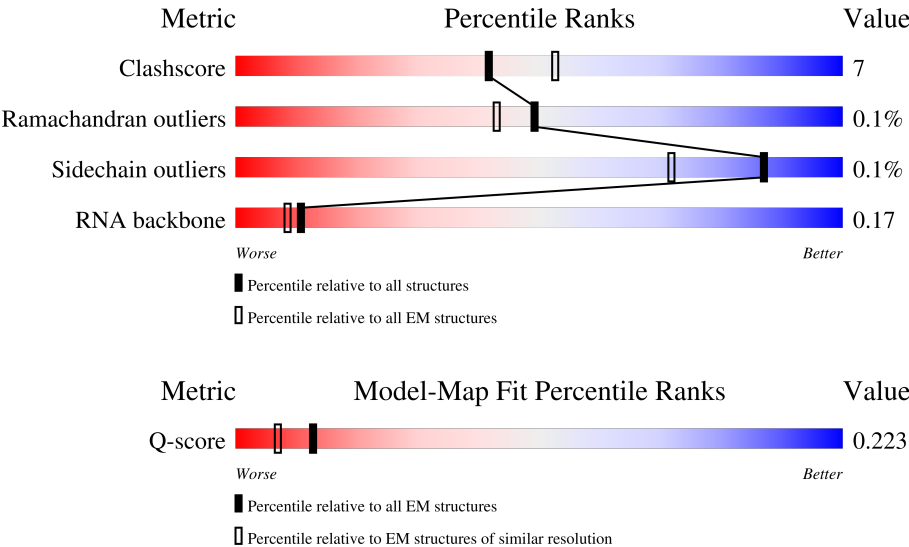
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY


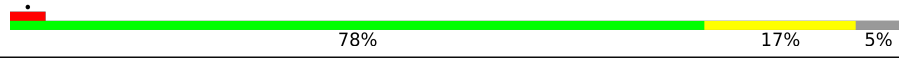

The reported resolution of this entry is 3.90 Å.

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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	8855 (3.40 - 4.40)

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	A	1743	
2	B	1227	
3	C	304	



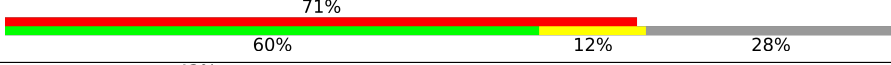
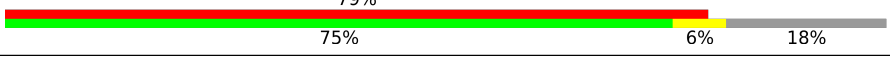
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Mol	Chain	Length	Quality of chain
4	D	186	
5	E	214	
6	F	155	
7	G	171	
8	H	145	
9	I	115	
10	J	72	
11	K	118	
12	L	72	
13	M	113	
14	N	198	
15	P	19	
16	T	198	
17	V	108	
18	W	911	
19	m	1503	
20	n	417	
21	q	1084	
22	r	544	
23	u	459	
24	v	396	
25	x	395	
26	a	139	
26	e	139	
27	b	106	

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Mol	Chain	Length	Quality of chain
27	f	106	
28	g	133	
29	h	129	
30	j	1008	
31	k	531	

2 Entry composition

There are 33 unique types of molecules in this entry. The entry contains 78660 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 DNA-directed RNA polymerase subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1404	Total	C	N	O	S	0	0
			11064	6975	1930	2089	70		

- Molecule 2 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	1164	Total	C	N	O	S	0	0
			9284	5848	1639	1739	58		

- Molecule 3 is a protein called RNA polymerase II third largest subunit B44, part of central core.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	263	Total	C	N	O	S	0	0
			2098	1319	354	413	12		

- Molecule 4 is a protein called RNA polymerase II subunit B32.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	174	Total	C	N	O	S	0	0
			1349	828	244	274	3		

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	E	213	Total	C	N	O	S	0	0
			1741	1094	312	325	10		

- Molecule 6 is a protein called RNA polymerase subunit ABC23, common to RNA polymerases I, II, and III.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	84	Total	C	N	O	S	0	0
			677	429	114	131	3		

- Molecule 7 is a protein called RNA polymerase II subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	171	Total	C	N	O	S	0	0
			1325	858	214	248	5		

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	133	Total	C	N	O	S	0	0
			1053	671	169	209	4		

- Molecule 9 is a protein called DNA-directed RNA polymerase subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	111	Total	C	N	O	S	0	0
			917	565	161	180	11		

- Molecule 10 is a protein called RNA polymerase subunit ABC10-beta, common to RNA polymerases I, II, and III.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	67	Total	C	N	O	S	0	0
			554	355	97	96	6		

- Molecule 11 is a protein called RNA polymerase II subunit B12.5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	113	Total	C	N	O	S	0	0
			932	599	160	169	4		

- Molecule 12 is a protein called RNA polymerase subunit ABC10-alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	45	Total	C	N	O	S	0	0
			359	221	72	61	5		

- Molecule 13 is a protein called Transcription elongation factor 1 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	64	Total	C	N	O	S	0	0
			505	318	82	99	6		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	-2	GLY	-	expression tag	UNP C4QZ45
M	-1	PRO	-	expression tag	UNP C4QZ45
M	0	GLY	-	expression tag	UNP C4QZ45

- Molecule 14 is a DNA chain called DNA (198-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	74	Total	C	N	O	P	0	0
			1516	723	258	461	74		

- Molecule 15 is a RNA chain called RNA (5'-R(P*UP*GP*UP*AP*AP*UP*CP*CP*CP*C P*UP*UP*GP*GP*CP*GP*GP*UP*U)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	19	Total	C	N	O	P	0	0
			399	178	64	138	19		

- Molecule 16 is a DNA chain called DNA (198-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
16	T	85	Total	C	N	O	P	0	0
			1744	824	346	489	85		

- Molecule 17 is a protein called Transcription elongation factor SPT4.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	V	106	Total	C	N	O	S	0	0
			824	512	150	155	7		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
V	7	MET	-	initiating methionine	UNP C4R0E6

- Molecule 18 is a protein called Transcription elongation factor SPT5.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	W	533	Total	C	N	O	S	0	0
			4232	2666	752	812	2		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
W	-2	GLY	-	expression tag	UNP C4R370
W	-1	PRO	-	expression tag	UNP C4R370
W	0	GLY	-	expression tag	UNP C4R370

- Molecule 19 is a protein called Transcription elongation factor Spt6.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	m	1187	Total	C	N	O	S	0	0
			9730	6162	1663	1877	28		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
m	-2	GLY	-	expression tag	UNP C4R7H2
m	-1	PRO	-	expression tag	UNP C4R7H2
m	0	GLY	-	expression tag	UNP C4R7H2

- Molecule 20 is a protein called Protein that interacts with Spt6p and copurifies with Spt5p and RNA polymerase II.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	n	139	Total	C	N	O	S	0	0
			1115	716	193	202	4		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
n	-2	GLY	-	expression tag	UNP C4R7L8
n	-1	PRO	-	expression tag	UNP C4R7L8
n	0	GLY	-	expression tag	UNP C4R7L8

- Molecule 21 is a protein called Component of the Paf1p complex.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	q	930	Total	C	N	O	S	0	0
			7552	4805	1283	1439	25		

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
q	-39	MET	-	initiating methionine	UNP C4R6B2
q	-38	LYS	-	expression tag	UNP C4R6B2
q	-37	ASP	-	expression tag	UNP C4R6B2
q	-36	HIS	-	expression tag	UNP C4R6B2
q	-35	LEU	-	expression tag	UNP C4R6B2
q	-34	ILE	-	expression tag	UNP C4R6B2
q	-33	HIS	-	expression tag	UNP C4R6B2
q	-32	ASN	-	expression tag	UNP C4R6B2
q	-31	HIS	-	expression tag	UNP C4R6B2
q	-30	HIS	-	expression tag	UNP C4R6B2
q	-29	LYS	-	expression tag	UNP C4R6B2
q	-28	HIS	-	expression tag	UNP C4R6B2
q	-27	GLU	-	expression tag	UNP C4R6B2
q	-26	HIS	-	expression tag	UNP C4R6B2
q	-25	ALA	-	expression tag	UNP C4R6B2
q	-24	HIS	-	expression tag	UNP C4R6B2
q	-23	ALA	-	expression tag	UNP C4R6B2
q	-22	GLU	-	expression tag	UNP C4R6B2
q	-21	HIS	-	expression tag	UNP C4R6B2
q	-20	ASP	-	expression tag	UNP C4R6B2
q	-19	TYR	-	expression tag	UNP C4R6B2
q	-18	LYS	-	expression tag	UNP C4R6B2
q	-17	ASP	-	expression tag	UNP C4R6B2
q	-16	ASP	-	expression tag	UNP C4R6B2
q	-15	ASP	-	expression tag	UNP C4R6B2
q	-14	ASP	-	expression tag	UNP C4R6B2
q	-13	LYS	-	expression tag	UNP C4R6B2
q	-12	GLU	-	expression tag	UNP C4R6B2
q	-11	HIS	-	expression tag	UNP C4R6B2
q	-10	LEU	-	expression tag	UNP C4R6B2
q	-9	TYR	-	expression tag	UNP C4R6B2
q	-8	PHE	-	expression tag	UNP C4R6B2
q	-7	GLN	-	expression tag	UNP C4R6B2
q	-6	GLY	-	expression tag	UNP C4R6B2
q	-5	SER	-	expression tag	UNP C4R6B2
q	-4	SER	-	expression tag	UNP C4R6B2
q	-3	GLY	-	expression tag	UNP C4R6B2
q	-2	SER	-	expression tag	UNP C4R6B2
q	-1	SER	-	expression tag	UNP C4R6B2
q	0	GLY	-	expression tag	UNP C4R6B2

- Molecule 22 is a protein called RNAPII-associated chromatin remodeling Paf1 complex sub-

unit.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	r	266	Total	C	N	O	S	0	0
			2139	1342	374	412	11		

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
r	-29	MET	-	initiating methionine	UNP F2QQ42
r	-28	LYS	-	expression tag	UNP F2QQ42
r	-27	ASP	-	expression tag	UNP F2QQ42
r	-26	HIS	-	expression tag	UNP F2QQ42
r	-25	LEU	-	expression tag	UNP F2QQ42
r	-24	ILE	-	expression tag	UNP F2QQ42
r	-23	HIS	-	expression tag	UNP F2QQ42
r	-22	ASN	-	expression tag	UNP F2QQ42
r	-21	HIS	-	expression tag	UNP F2QQ42
r	-20	HIS	-	expression tag	UNP F2QQ42
r	-19	LYS	-	expression tag	UNP F2QQ42
r	-18	HIS	-	expression tag	UNP F2QQ42
r	-17	GLU	-	expression tag	UNP F2QQ42
r	-16	HIS	-	expression tag	UNP F2QQ42
r	-15	ALA	-	expression tag	UNP F2QQ42
r	-14	HIS	-	expression tag	UNP F2QQ42
r	-13	ALA	-	expression tag	UNP F2QQ42
r	-12	GLU	-	expression tag	UNP F2QQ42
r	-11	HIS	-	expression tag	UNP F2QQ42
r	-10	LEU	-	expression tag	UNP F2QQ42
r	-9	TYR	-	expression tag	UNP F2QQ42
r	-8	PHE	-	expression tag	UNP F2QQ42
r	-7	GLN	-	expression tag	UNP F2QQ42
r	-6	GLY	-	expression tag	UNP F2QQ42
r	-5	SER	-	expression tag	UNP F2QQ42
r	-4	SER	-	expression tag	UNP F2QQ42
r	-3	GLY	-	expression tag	UNP F2QQ42
r	-2	SER	-	expression tag	UNP F2QQ42
r	-1	SER	-	expression tag	UNP F2QQ42
r	0	GLY	-	expression tag	UNP F2QQ42

- Molecule 23 is a protein called Leo1.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	u	208	Total	C	N	O	S	0	0
			1707	1063	304	337	3		

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
u	-29	MET	-	initiating methionine	UNP C4R3K1
u	-28	LYS	-	expression tag	UNP C4R3K1
u	-27	ASP	-	expression tag	UNP C4R3K1
u	-26	HIS	-	expression tag	UNP C4R3K1
u	-25	LEU	-	expression tag	UNP C4R3K1
u	-24	ILE	-	expression tag	UNP C4R3K1
u	-23	HIS	-	expression tag	UNP C4R3K1
u	-22	ASN	-	expression tag	UNP C4R3K1
u	-21	HIS	-	expression tag	UNP C4R3K1
u	-20	HIS	-	expression tag	UNP C4R3K1
u	-19	LYS	-	expression tag	UNP C4R3K1
u	-18	HIS	-	expression tag	UNP C4R3K1
u	-17	GLU	-	expression tag	UNP C4R3K1
u	-16	HIS	-	expression tag	UNP C4R3K1
u	-15	ALA	-	expression tag	UNP C4R3K1
u	-14	HIS	-	expression tag	UNP C4R3K1
u	-13	ALA	-	expression tag	UNP C4R3K1
u	-12	GLU	-	expression tag	UNP C4R3K1
u	-11	HIS	-	expression tag	UNP C4R3K1
u	-10	LEU	-	expression tag	UNP C4R3K1
u	-9	TYR	-	expression tag	UNP C4R3K1
u	-8	PHE	-	expression tag	UNP C4R3K1
u	-7	GLN	-	expression tag	UNP C4R3K1
u	-6	GLY	-	expression tag	UNP C4R3K1
u	-5	SER	-	expression tag	UNP C4R3K1
u	-4	SER	-	expression tag	UNP C4R3K1
u	-3	GLY	-	expression tag	UNP C4R3K1
u	-2	SER	-	expression tag	UNP C4R3K1
u	-1	SER	-	expression tag	UNP C4R3K1
u	0	GLY	-	expression tag	UNP C4R3K1

- Molecule 24 is a protein called RNAP II-associated protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	v	349	Total	C	N	O	S	0	0
			2878	1835	510	528	5		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
v	-2	GLY	-	expression tag	UNP C4R997

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Chain	Residue	Modelled	Actual	Comment	Reference
v	-1	SER	-	expression tag	UNP C4R997
v	0	ALA	-	expression tag	UNP C4R997

- Molecule 25 is a protein called Constituent of Paf1 complex with RNA polymerase II, Paf1p, Hpr1p, Ctr9, Leo1, Rtf1 and Ccr4p.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	x	205	Total	C	N	O	S	0	0
			1682	1086	287	307	2		

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
x	-29	MET	-	initiating methionine	UNP C4R1E6
x	-28	LYS	-	expression tag	UNP C4R1E6
x	-27	ASP	-	expression tag	UNP C4R1E6
x	-26	HIS	-	expression tag	UNP C4R1E6
x	-25	LEU	-	expression tag	UNP C4R1E6
x	-24	ILE	-	expression tag	UNP C4R1E6
x	-23	HIS	-	expression tag	UNP C4R1E6
x	-22	ASN	-	expression tag	UNP C4R1E6
x	-21	HIS	-	expression tag	UNP C4R1E6
x	-20	HIS	-	expression tag	UNP C4R1E6
x	-19	LYS	-	expression tag	UNP C4R1E6
x	-18	HIS	-	expression tag	UNP C4R1E6
x	-17	GLU	-	expression tag	UNP C4R1E6
x	-16	HIS	-	expression tag	UNP C4R1E6
x	-15	ALA	-	expression tag	UNP C4R1E6
x	-14	HIS	-	expression tag	UNP C4R1E6
x	-13	ALA	-	expression tag	UNP C4R1E6
x	-12	GLU	-	expression tag	UNP C4R1E6
x	-11	HIS	-	expression tag	UNP C4R1E6
x	-10	LEU	-	expression tag	UNP C4R1E6
x	-9	TYR	-	expression tag	UNP C4R1E6
x	-8	PHE	-	expression tag	UNP C4R1E6
x	-7	GLN	-	expression tag	UNP C4R1E6
x	-6	GLY	-	expression tag	UNP C4R1E6
x	-5	SER	-	expression tag	UNP C4R1E6
x	-4	SER	-	expression tag	UNP C4R1E6
x	-3	GLY	-	expression tag	UNP C4R1E6
x	-2	SER	-	expression tag	UNP C4R1E6
x	-1	SER	-	expression tag	UNP C4R1E6

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Chain	Residue	Modelled	Actual	Comment	Reference
x	0	GLY	-	expression tag	UNP C4R1E6

- Molecule 26 is a protein called Histone H3.3.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	a	75	Total	C	N	O	S	0	0
			606	385	114	105	2		
26	e	77	Total	C	N	O	S	0	0
			620	393	116	109	2		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	-3	GLY	-	expression tag	UNP P84243
a	-2	SER	-	expression tag	UNP P84243
a	-1	HIS	-	expression tag	UNP P84243
e	-3	GLY	-	expression tag	UNP P84243
e	-2	SER	-	expression tag	UNP P84243
e	-1	HIS	-	expression tag	UNP P84243

- Molecule 27 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	b	83	Total	C	N	O	S	0	0
			662	418	129	114	1		
27	f	78	Total	C	N	O	S	0	0
			619	391	120	107	1		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
b	-3	GLY	-	expression tag	UNP P62805
b	-2	SER	-	expression tag	UNP P62805
b	-1	HIS	-	expression tag	UNP P62805
f	-3	GLY	-	expression tag	UNP P62805
f	-2	SER	-	expression tag	UNP P62805
f	-1	HIS	-	expression tag	UNP P62805

- Molecule 28 is a protein called Histone H2A type 1-B/E.

Mol	Chain	Residues	Atoms				AltConf	Trace
28	g	92	Total	C	N	O	0	0
			715	447	142	126		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
g	-3	GLY	-	expression tag	UNP P04908
g	-2	SER	-	expression tag	UNP P04908
g	-1	HIS	-	expression tag	UNP P04908

- Molecule 29 is a protein called Histone H2B type 1-J.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	h	93	Total	C	N	O	S	0	0
			725	456	130	137	2		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
h	-6	GLY	-	expression tag	UNP P06899
h	-5	SER	-	expression tag	UNP P06899
h	-4	HIS	-	expression tag	UNP P06899

- Molecule 30 is a protein called FACT complex subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	j	471	Total	C	N	O	S	0	0
			3791	2403	663	712	13		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
j	-2	GLY	-	expression tag	UNP C4QYQ8
j	-1	PRO	-	expression tag	UNP C4QYQ8
j	0	GLY	-	expression tag	UNP C4QYQ8

- Molecule 31 is a protein called FACT complex subunit POB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	k	434	Total	C	N	O	S	0	0
			3535	2233	619	673	10		

There are 3 discrepancies between the modelled and reference sequences:

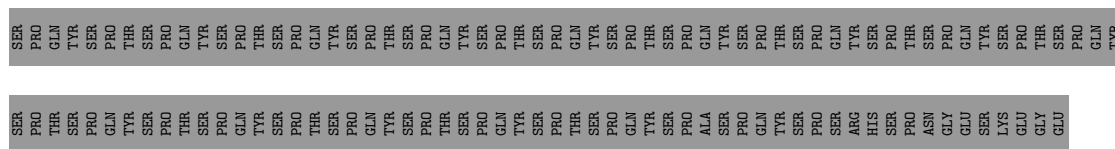
Chain	Residue	Modelled	Actual	Comment	Reference
k	-2	GLY	-	expression tag	UNP F2QNN8
k	-1	PRO	-	expression tag	UNP F2QNN8
k	0	GLY	-	expression tag	UNP F2QNN8

- Molecule 32 is ZINC ION (CCD ID: ZN) (formula: Zn).

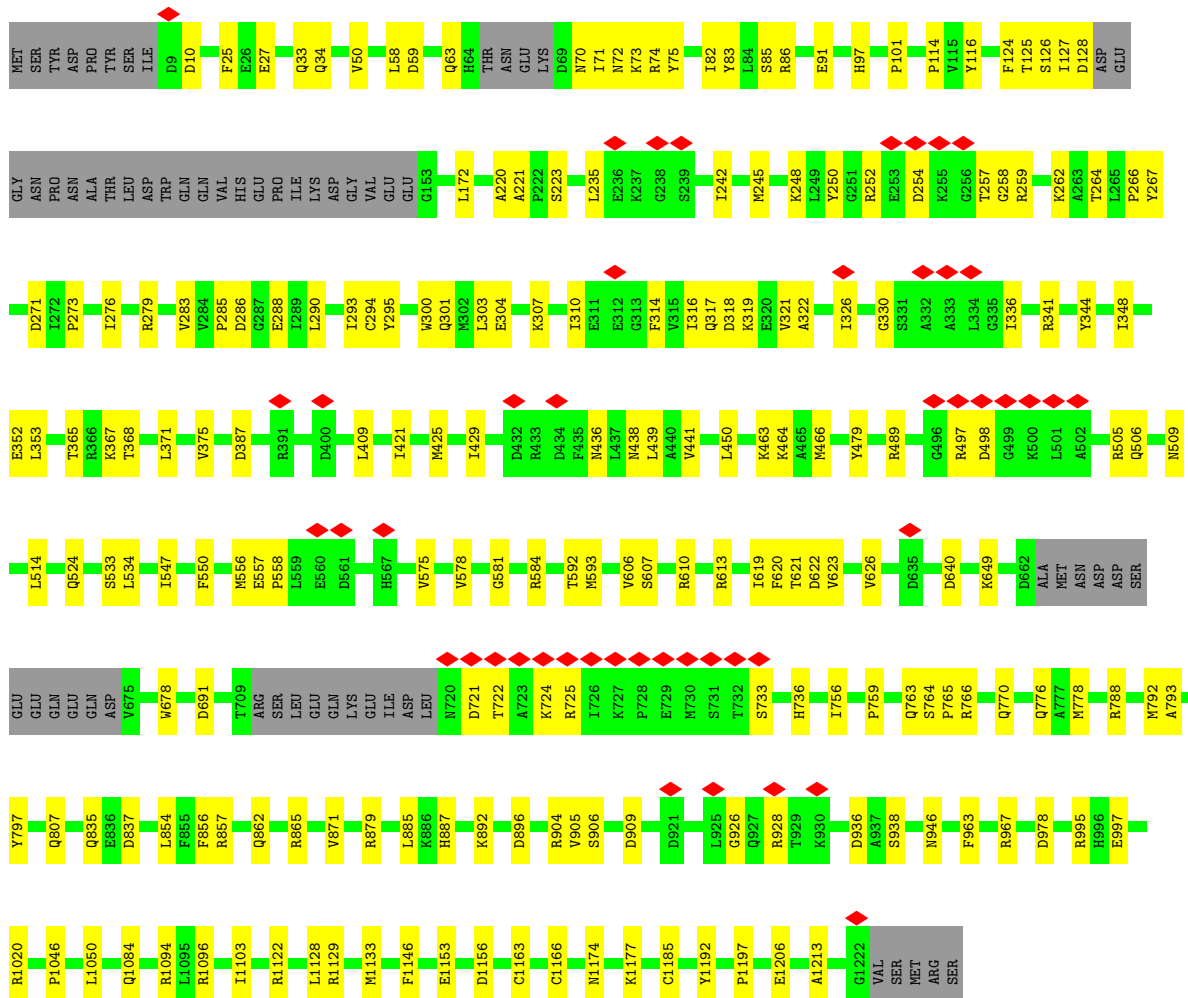
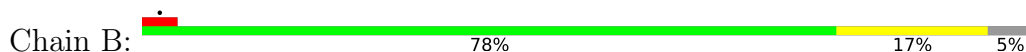
Mol	Chain	Residues	Atoms		AltConf
32	A	2	Total 2	Zn 2	0
32	B	1	Total 1	Zn 1	0
32	C	1	Total 1	Zn 1	0
32	I	2	Total 2	Zn 2	0
32	J	1	Total 1	Zn 1	0
32	L	1	Total 1	Zn 1	0
32	M	1	Total 1	Zn 1	0
32	V	1	Total 1	Zn 1	0

- Molecule 33 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

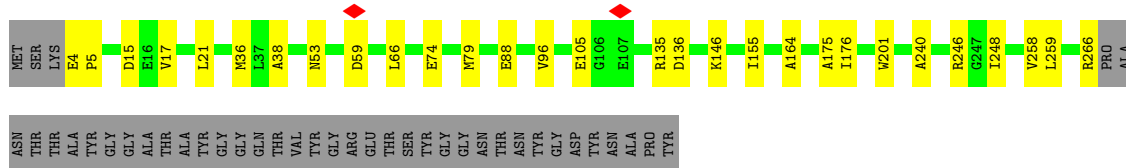
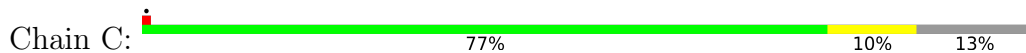
Mol	Chain	Residues	Atoms		AltConf
33	A	1	Total 1	Mg 1	0



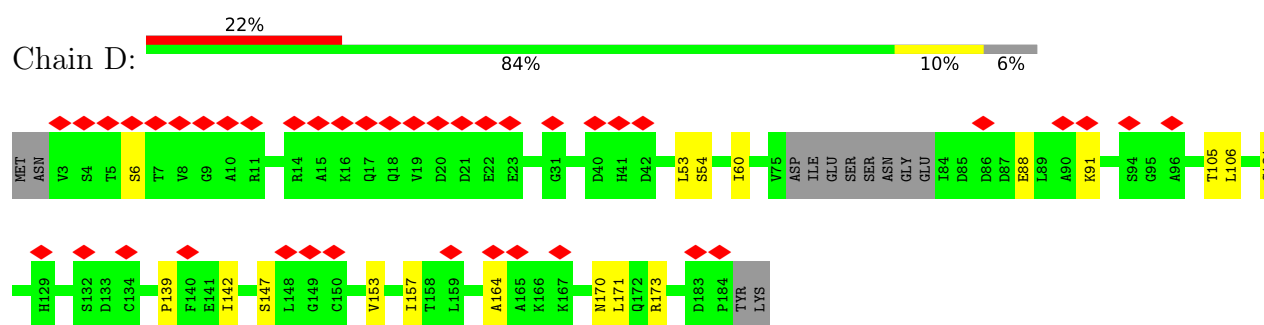
- Molecule 2: DNA-directed RNA polymerase subunit beta



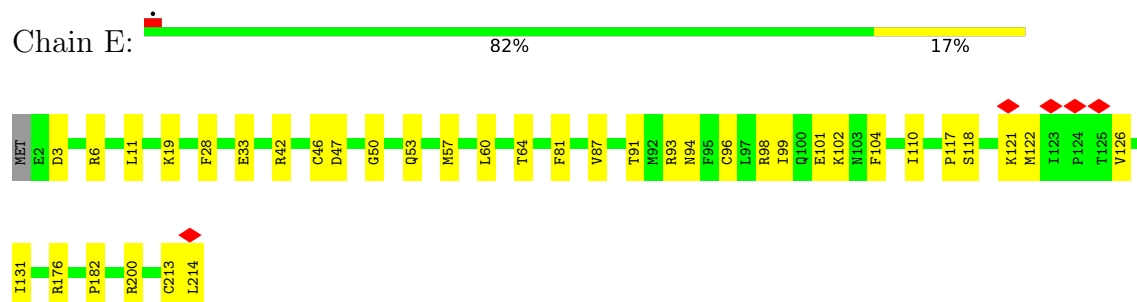
- Molecule 3: RNA polymerase II third largest subunit B44, part of central core



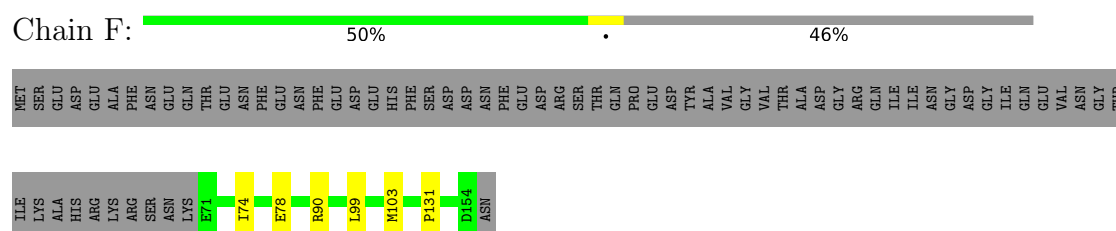
- Molecule 4: RNA polymerase II subunit B32



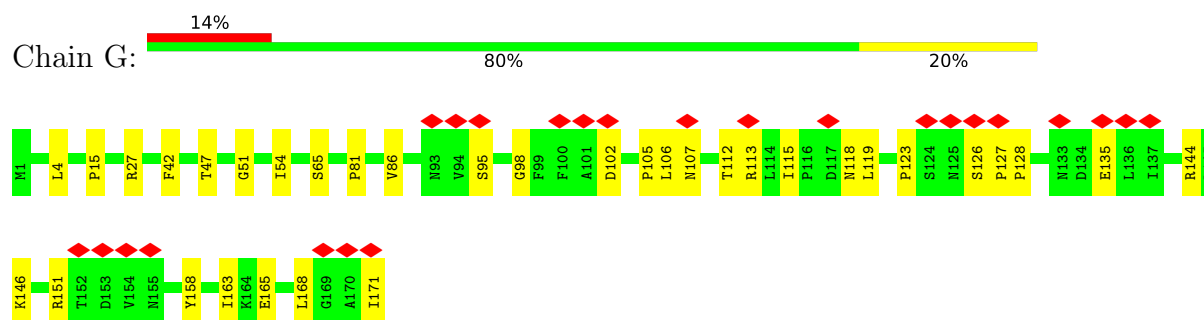
- Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC1



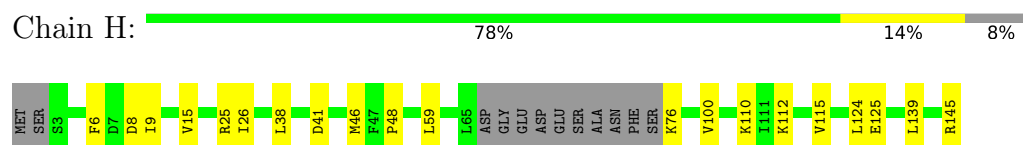
- Molecule 6: RNA polymerase subunit ABC23, common to RNA polymerases I, II, and III



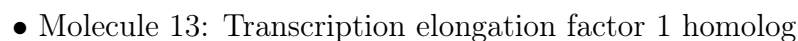
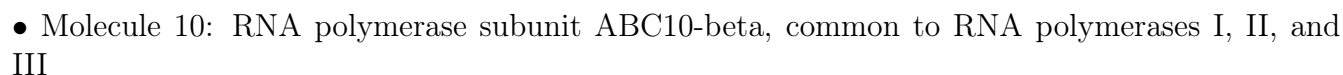
- Molecule 7: RNA polymerase II subunit



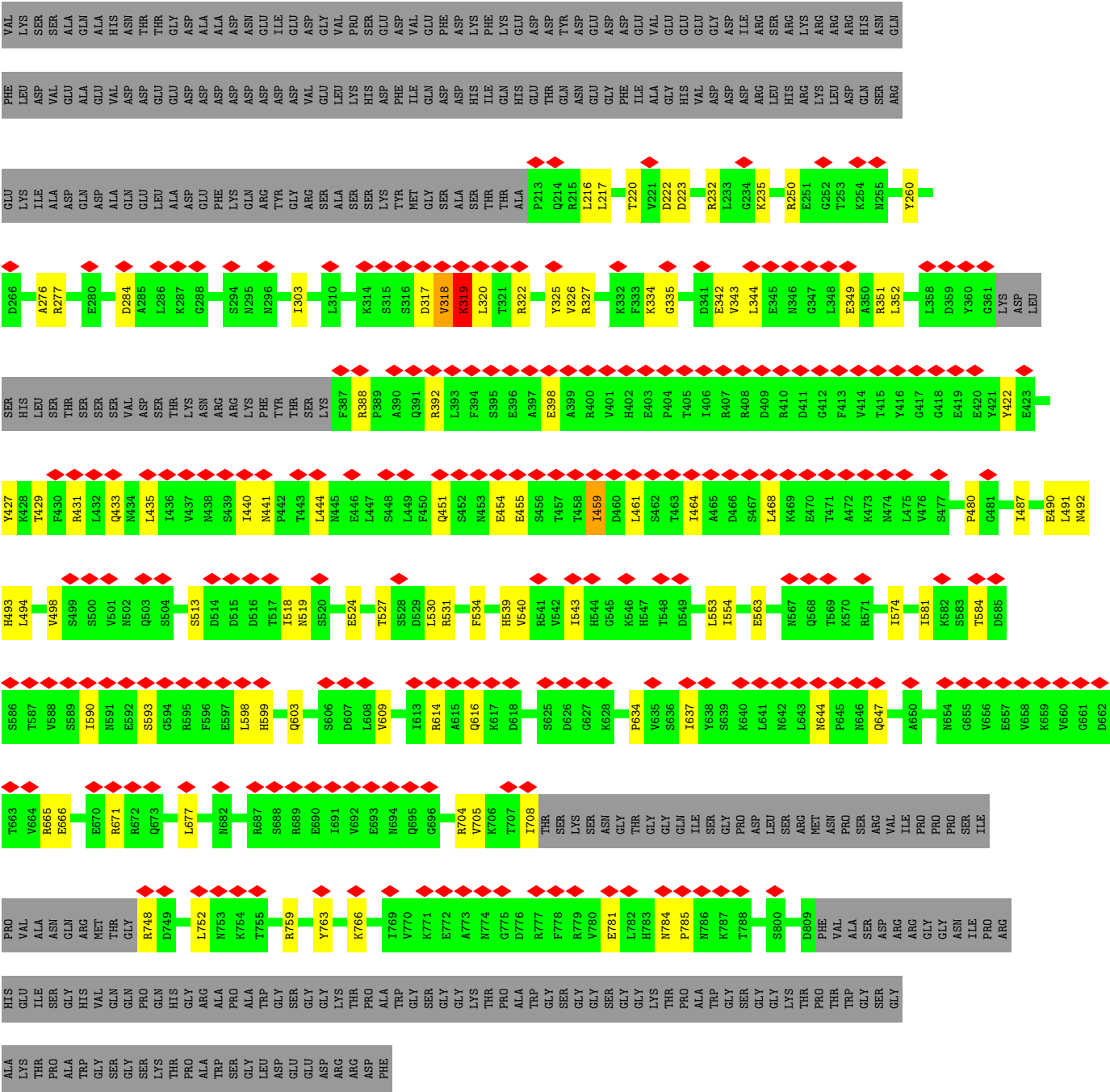
- Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3



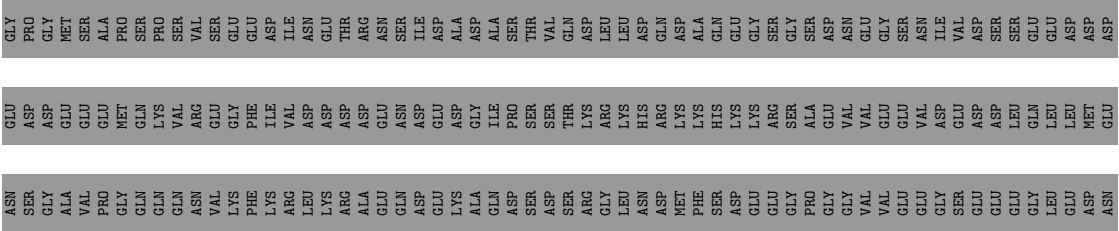
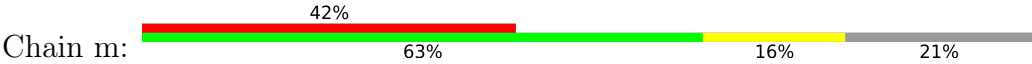
- Molecule 9: DNA-directed RNA polymerase subunit

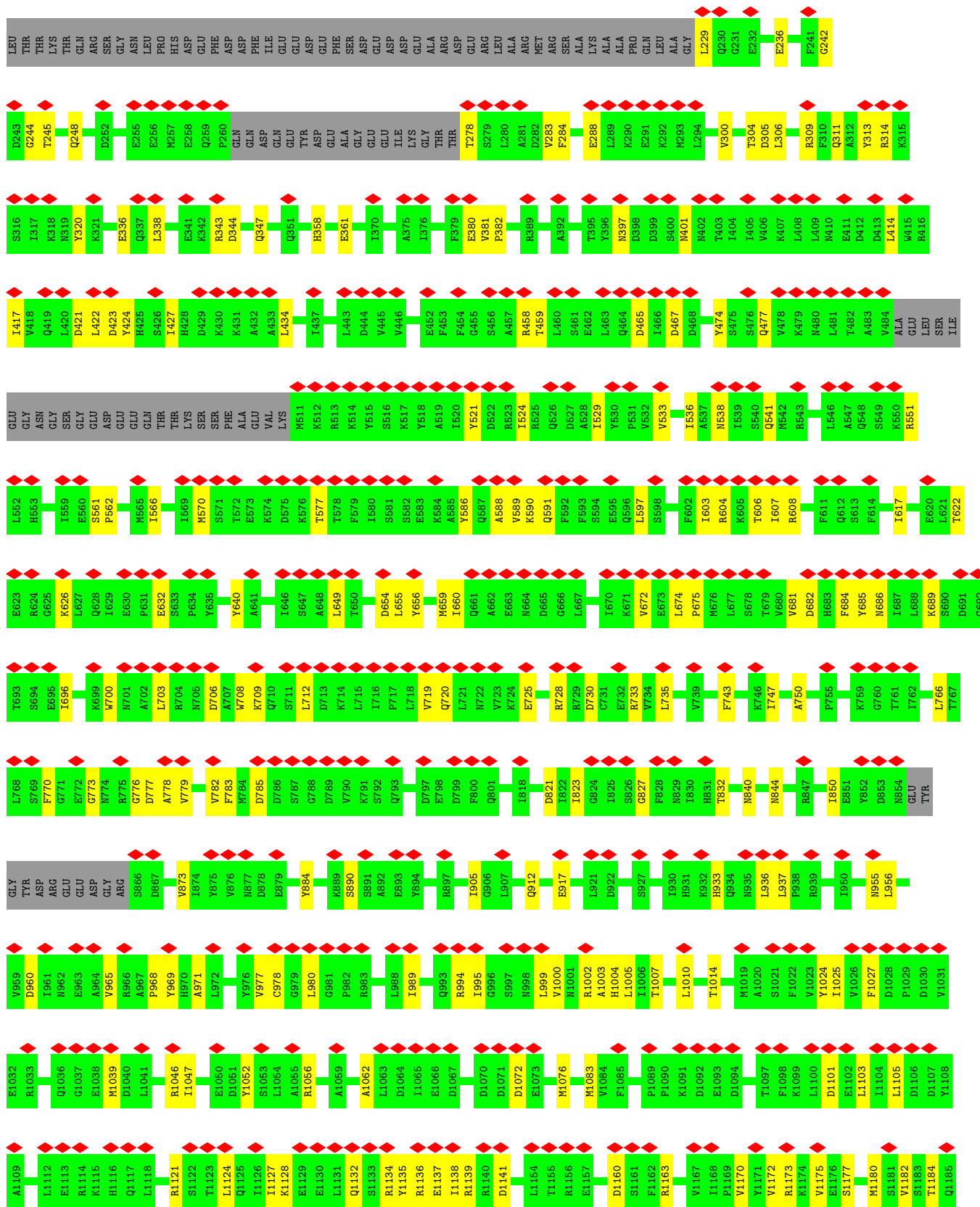






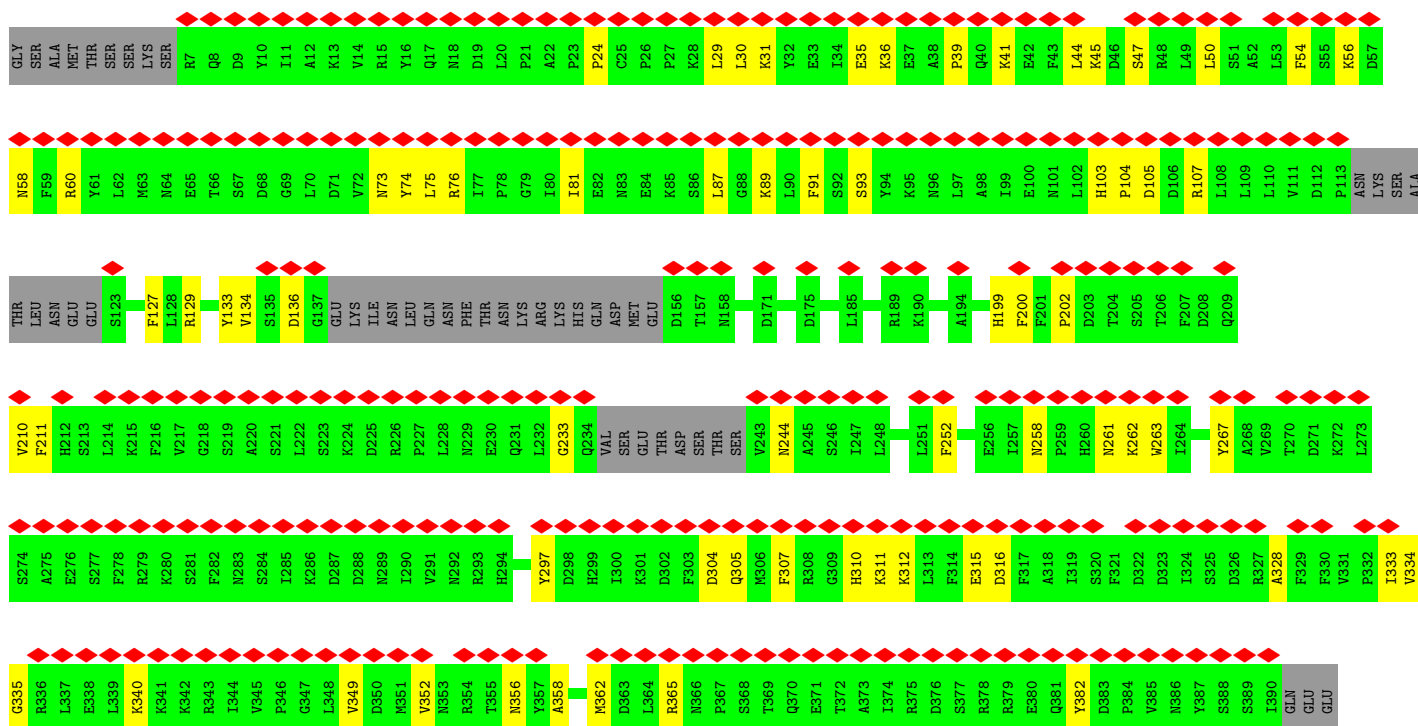
● Molecule 19: Transcription elongation factor Spt6



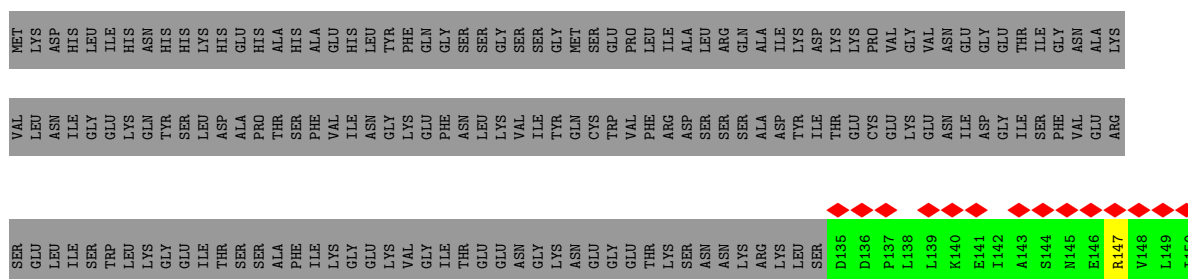


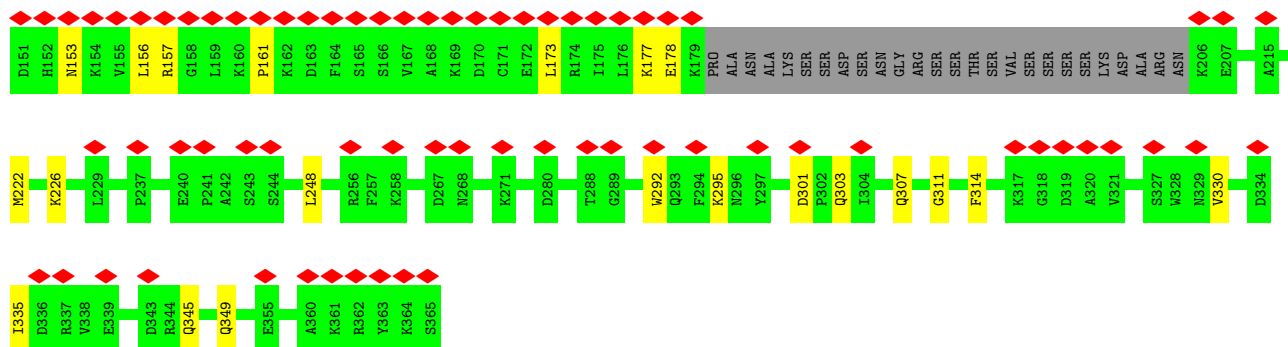
MET	LYS	ASP	HIS	LEU	ILE	HIS	ASN	HIS	LYS	HIS	GLU	ALA	ALA	GLU	HIS	ASP	TYR	LYS	ASP	ASP	ASP	ASP	LYS	GLU	HIS	LEU	TYR	PHE	GLN	GLY	SER	SER	GLY	SER	SER	GLY	SER	GLY	M1	S2	L3	L4	D5	D6	D7	D8	Y9	L10	S11	A12	L13	L12	P14	E15	D16	K17	R18	A19	E20
L21	V22	T23	L24	Q25	L26	T27	I28	P29	L30	K31	S32	G33	D34	E35	V36	V37	L38	I39	D40	F41	N42	E43	D44	V45	D46	V47	S48	Q49	L50	C51	V52	L53	L54	E55	S56	E57	N58	A59	R60	P61	D62	L63	W64	L65	S66	A67	K68	K69	F71	V72	S73	K74	G75	N76	I77	A78	G79	S80	
Q81	E82	I83	I84	R85	K86	A87	L88	Q89	S90	N91	V92	I93	L94	D95	S96	S97	A98	S99	V100	T101	S102	L103	F104	H105	N106	F107	S108	F109	W110	L111	S112	L113	M114	E115	Y116	V117	S118	T119	N120	S121	R122	E123	G124	Q125	F126	L127	I128	Y129	A130	S131	N132	L133	Q134	G135	A136	S137	N138	S139	
D141	S142	G143	L144	A145	L146	N147	G148	I149	G150	N151	G152	V153	L154	Y155	A156	K157	S158	R159	R160	Y161	D162	E163	A164	L165	K166	E167	F168	D169	N170	L171	L172	K173	K174	K175	S176	T177	N178	I179	L180	A181	I182	L183	G184	K185	A186	Q187	I188	L189	Y190	K191	R192	Q193	K194	Y195	S196	Q197	A198	L199	E200
L201	Y202	Q203	K204	A205	L206	T207	I208	N209	P210	L211	I212	V213	P214	D215	P216	R217	L218	G219	I220	F224	W225	H226	L227	N228	N229	K230	Q231	L232	A233	E234	Q235	A236	W237	H238	N239	S240	L241	K242	V243	H244	P245	Q246	N247	L248	N249	N250	T251	K252	I253	L254	L255	C256	A258	K259	F260	D261	Y262		
C263	F264	N265	E266	S267	K268	D269	D270	D271	E272	F273	T274	Y277	R278	E279	S280	L281	E282	F283	L284	H285	S286	C287	L288	K289	E290	D291	A292	K293	H294	P295	L296	L297	L298	M299	V300	L301	A302	S303	Y304	K308	E309	D310	Y311	E312	K313	K316	L317	C318	N319	L320	V321	L322	K323	E324	N325				
S326	R327	N328	A329	A330	F331	V332	S333	A334	F337	R341	K346	E347	D348	Y349	V350	Q351	A352	Q353	K357	Q358	A359	E360	D361	K362	Q363	N364	S365	N366	T367	L368	A369	K370	L371	G372	Y373	Q375	C376	L377	I378	A379	R380	N381	E382	V383	G384	D385	A386	T387	L388	L389	E391	K392	F393						
F394	K395	E396	N397	Q398	D399	S400	K401	S402	S403	E404	M405	M406	L407	L408	L409	G410	L411	L412	Y413	S414	Q415	S416	G417	K418	Y421	A423	I424	L425	E428	K429	Y430	V433	C434	Q435	E436	E437	M438	Y439	P440	L441	L442	P443	E444	A445	Y446	L447	L448	L449	S450	R451	E454	N455	K456	D457					
L458	M459	V460	A461	L462	D463	Y464	L465	M466	K467	A468	M469	D470	L471	L472	G473	D474	K475	A476	M477	Y478	Y479	V480	L481	M482	M483	L486	Y487	H488	F489	M492	M493	V494	S495	D499	F500	F501	A502	Q503	S504	L505	E506	A507	L508	N509	M510	V511	S512	P513	Q514	N515	K516	E517	A518	L519	S520	L521			
T522	L523	H524	Y525	N526	R529	V530	E531	E532	V533	S534	N535	Q536	S537	E538	A539	E540	K541	L542	Y543	S544	K545	L546	M547	K549	C550	P551	G552	Y553	T554	S555	R559	Y560	I561	Y562	L566	K567	S568	N569	G570	N571	A574	D575	V576	Q577	Q578	L579	L580	D581	D582	S585	D586	L587	E588						
Y589	R590	S591	G594	W595	K598	R599	R602	K603	N604	G605	L606	K607	Q608	D609	L610	E611	S612	Q613	H614	H615	T618	L619	E620	D623	K624	H625	D626	C627	Y628	A629	G634	N635	I636	Y637	A638	T639	I640	A641	B642	E643	H644	K645	V646	T647	D648	Q649	K650	Q651	H652	E653									
I654	K655	R656	F657	Q658	Y659	A662	A663	Y666	H667	K668	V669	L670	S671	L672	M676	L677	Y678	E679	A680	L683	A684	L685	L686	F687	S688	D689	K690	E691	R692	T693	G694	L695	A696	R704	D705	Q708	D709	ALA	G711	F712	F713	H718	A723	K724	Q725	F726	G727	K728	Y733										
A736	L737	E738	K739	F740	S741	N742	G743	N744	D745	S746	K747	L748	L751	W756	Y757	F761	Y762	E763	K764	S765	M766	K770	K771	A772	L773	E774	V775	S776	E777	W778	E779	Y780	Q781	L782	L783	K784	R789	V793	F794	L795	I799	F802	L806	T809	Q810	R811	L816												
N824	D825	A826	S829	L830	L833	A834	E835	L836	E837	Q838	Y841	L846	R849	N855	R858	L865	Q868	Y871	E872	I875	R915	L918	A922	E923	E924	W925	N926	K927	N928	D929	I930	ASP	ALA	ALA	LYS	ASP	ASN	ASN	ASP	VAL	LEU	SER	GLU	ASP	GLY														

- Molecule 24: RNAP II-associated protein

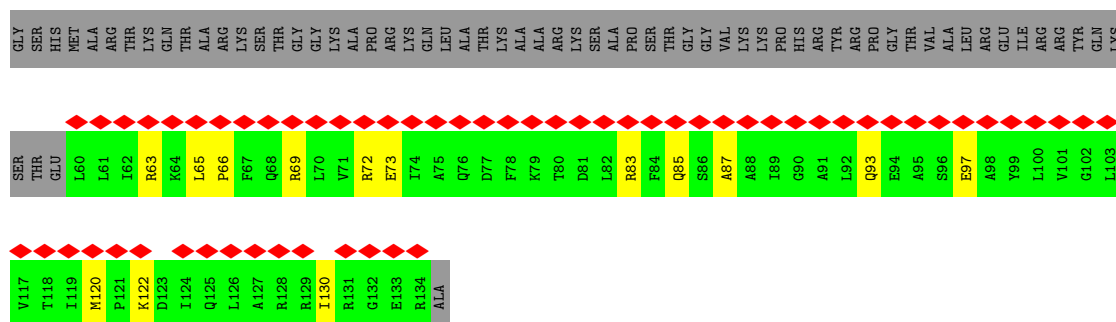


- Molecule 25: Constituent of Paf1 complex with RNA polymerase II, Paf1p, Hpr1p, Ctr9, Leo1, Rtf1 and Ccr4p

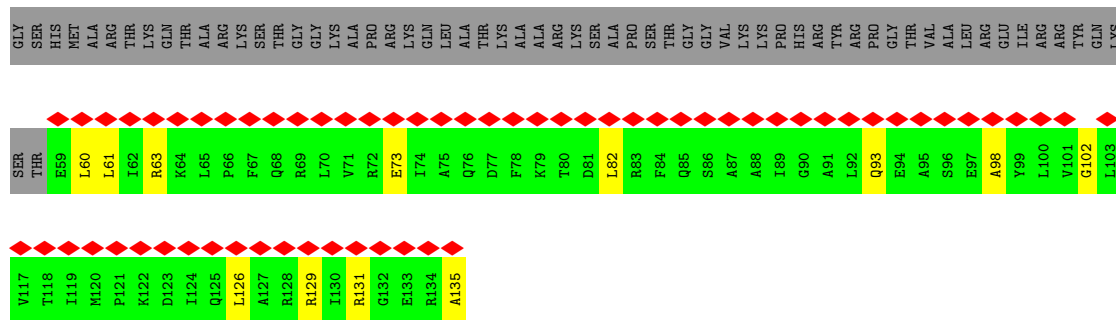
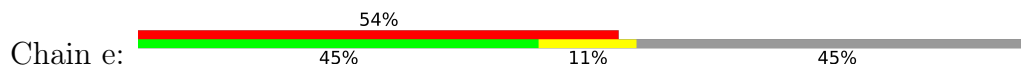




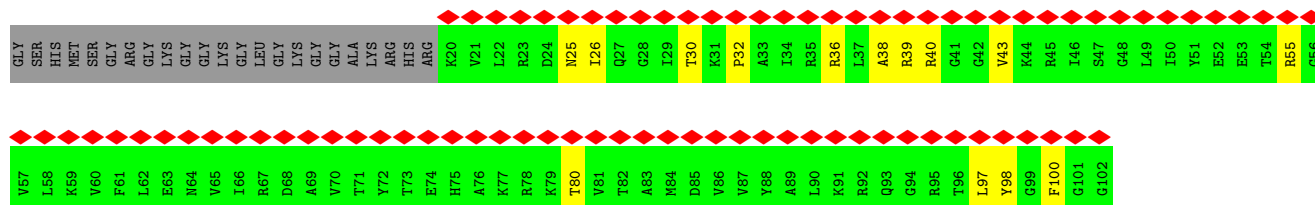
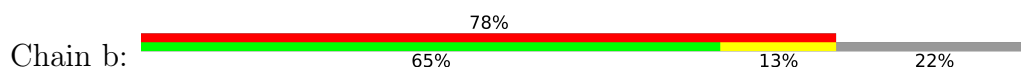
• Molecule 26: Histone H3.3



• Molecule 26: Histone H3.3



• Molecule 27: Histone H4



• Molecule 27: Histone H4

- Molecule 31: FACT complex subunit POB3

SER	V419	Q359	Q299	I239	P179	T118	R58
ALA	Q420	H360	F300	S240	G180	R119	G59
GLY	F421	M361	D301	M241	Q181	A120	Y60
ASP	S422	Q362	R302	Y242	ILE	E121	R61
GLU	G423	P363	N303	A243	ASP	L122	G62
SER	G424	G364	E304	N244	LYS	V123	W63
VAL	S425	V365	E305	N245	ASP	F124	E64
ASP	H426	N366	L306	L246	GLU	N125	L65
GLU	T427	C367	E307	R247	ASP	V126	R66
PHE	F428	S368	V308	L248	THR	N127	V67
ASN	A429	L369	E309	R249	GLU	N128	Y68
ALA	N430	K370	L310	G250	GLY	R129	T69
GLY	I431	A371	N311	Q251	GLN	P130	R70
SER	N432	S372	L312	S252	ASP	A131	N71
ASP	K433	E373	L313	Y253	THR	W132	D72
ASP	D434	G374	D314	D254	GLU	E133	K73
VAL	E435	Q375	E315	Y255	GLU	I134	V74
ALA	Q436	I376	E316	K256	ALA	P135	I75
GLU	Q437	Y377	Y317	I257	LYS	Y136	M76
TYR	P438	L378	K318	Q258	SER	S137	I77
ASP	I439	L379	S319	N259	K201	E138	D78
SER	E440	D380	K320	K260	S202	G79	G79
ASN	ALA	K381	Y321	N261	Q203	F80	F80
ALA	D441	C382	E322	V262	Y206	E81	E81
SER	F442	G383	G323	L263	E207	Q82	Q82
GLU	L443	L384	K324	R264	Q208	Q83	Q83
ASP	K444	F385	L325	I265	L209	D84	D84
GLU	G445	A386	N326	F266	K210	F85	F85
ASP	Q446	S387	R327	S267	D211	Q86	Q86
SER	G447	T387	S328	L268	K212	R47	R47
ALA	V448	K388	Y329	P269	A213	H148	Q87
SER	R449	P389	G330	R270	D214	E149	L88
SER	V450	C390	T331	L271	F215	I150	K89
GLY	K451	V391	D332	D272	D216	S151	N90
GLU	N452	Y392	S333	D273	E91	M152	E91
GLU	E453	L393	T334	R274	T217	E153	I92
LYS	LYS	P394	Y335	H275	T218	L154	Q93
PRO	ALA	Y395	K336	H276	S219	N155	R94
LYS	GLU	S396	K337	L277	E220	P156	T95
LYS	PHE	G397	I338	L278	A221	K157	F96
HIS	LEU	I398	L339	I279	I222	T158	N97
	GLY	I399	S339	V223	V223	V159	V98
	ASN	I399	H340	S224	S224	D160	N99
	LEU	S400	C341	Q281	F225	E161	L100
	VAL	V401	L342	V282	E226	N162	E101
	ASP	V402	G343	D283	D227	H163	H102
	ASP	T403	G344	P284	I228	Y164	K103
	ASP	S404	L345	P285	L229	E165	E104
	ASP	R405	T346	L286	F230	T166	H105
	SER	G406	E347	R287	L231	L167	S106
	ASP	T407	R348	Q288	T232	G168	L107
	ASP	G408	R349	G289	P233	D169	R108
	ASP	Q409	V350	Q290	R234	E170	G109
	ILE	S410	I351	T291	G235	L171	W110
	ALA	T411	T352	R292	R236	V172	N111
	MET	S412	P353	Y293	F237	E173	W112
	GLY	R413	G354	P294	E238	V174	G113
		T414	S355	F295		R175	K114
		F415	F356	L296		L176	T115
		D416	Q357	V297		Y177	Q116
		I417	E418	M298		V178	L117

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	29919	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 ($e^-/\text{\AA}^2$)	51	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.080	Depositor
Minimum map value	-0.052	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.009	Depositor
Map size (\AA)	356.16, 356.16, 356.16	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.484, 1.484, 1.484	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, 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	A	0.23	0/11267	0.32	1/15222 (0.0%)
2	B	0.24	0/9464	0.30	0/12763
3	C	0.25	0/2139	0.30	0/2895
4	D	0.11	0/1361	0.24	0/1837
5	E	0.20	0/1773	0.27	0/2385
6	F	0.24	0/687	0.28	0/931
7	G	0.15	0/1354	0.28	0/1837
8	H	0.23	0/1070	0.28	0/1444
9	I	0.10	0/934	0.25	0/1257
10	J	0.25	0/563	0.28	0/753
11	K	0.24	0/953	0.29	0/1291
12	L	0.19	0/365	0.26	0/484
13	M	0.11	0/513	0.25	0/693
14	N	0.60	0/1693	0.87	0/2611
15	P	0.40	0/443	0.71	1/687 (0.1%)
16	T	0.55	0/1963	0.78	0/3024
17	V	0.11	0/840	0.21	0/1140
18	W	0.19	0/4300	0.35	0/5812
19	m	0.11	0/9925	0.25	0/13424
20	n	0.10	0/1132	0.22	0/1526
21	q	0.11	0/7689	0.22	0/10368
22	r	0.11	0/2169	0.24	0/2901
23	u	0.19	0/1740	0.30	0/2347
24	v	0.11	0/2944	0.24	0/3973
25	x	0.14	0/1716	0.25	0/2310
26	a	0.47	0/613	0.64	0/822
26	e	0.25	0/627	0.43	0/841
27	b	0.43	0/669	0.63	0/894
27	f	0.29	0/626	0.46	0/837
28	g	0.21	0/723	0.36	0/973
29	h	0.31	0/736	0.39	0/990
30	j	0.86	0/3865	1.16	0/5206

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
31	k	0.80	0/3613	1.12	0/4881
All	All	0.34	0/80469	0.48	2/109359 (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
14	N	0	3
30	j	0	1
31	k	0	1
All	All	0	5

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1001	VAL	N-CA-C	-5.67	107.29	112.96
15	P	10	U	OP1-P-O3'	5.54	124.60	108.00

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
14	N	-42	DG	Sidechain
14	N	-62	DT	Sidechain
14	N	-77	DC	Sidechain
30	j	616	ARG	Sidechain
31	k	58	ARG	Sidechain

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	A	11064	0	11090	122	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	9284	0	9282	140	0
3	C	2098	0	2057	21	0
4	D	1349	0	1345	11	0
5	E	1741	0	1754	25	0
6	F	677	0	693	6	0
7	G	1325	0	1342	22	0
8	H	1053	0	1050	12	0
9	I	917	0	867	16	0
10	J	554	0	573	6	0
11	K	932	0	944	16	0
12	L	359	0	358	6	0
13	M	505	0	495	6	0
14	N	1516	0	842	67	0
15	P	399	0	203	29	0
16	T	1744	0	945	68	0
17	V	824	0	795	22	0
18	W	4232	0	4278	72	0
19	m	9730	0	9588	145	0
20	n	1115	0	1186	24	0
21	q	7552	0	7545	107	0
22	r	2139	0	2155	42	0
23	u	1707	0	1676	26	0
24	v	2878	0	2873	56	0
25	x	1682	0	1731	16	0
26	a	606	0	639	21	0
26	e	620	0	650	17	0
27	b	662	0	709	15	0
27	f	619	0	659	12	0
28	g	715	0	755	14	0
29	h	725	0	745	13	0
30	j	3791	0	3725	31	0
31	k	3535	0	3467	32	0
32	A	2	0	0	0	0
32	B	1	0	0	0	0
32	C	1	0	0	0	0
32	I	2	0	0	0	0
32	J	1	0	0	0	0
32	L	1	0	0	0	0
32	M	1	0	0	0	0
32	V	1	0	0	0	0
33	A	1	0	0	0	0
All	All	78660	0	77016	1047	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 7.

All (1047) 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)
15:P:5:G:H2'	15:P:6:G:C8	2.00	0.97
14:N:-49:DG:N2	16:T:50:DA:C2	2.36	0.93
17:V:42:ASP:HB3	26:e:63:ARG:HG2	1.50	0.93
15:P:5:G:H2'	15:P:6:G:H8	1.33	0.92
16:T:2:DG:H2'	16:T:3:DT:H71	1.52	0.91
31:k:286:LEU:HD12	31:k:296:LEU:HD21	1.54	0.90
16:T:3:DT:H2'	16:T:4:DC:C6	2.07	0.90
16:T:46:DA:OP1	30:j:744:LYS:CE	2.21	0.89
14:N:-49:DG:N2	16:T:50:DA:H2	1.71	0.88
16:T:-3:DG:H2''	16:T:-2:DC:C5	2.13	0.83
14:N:-14:DA:N6	14:N:-13:DA:C6	2.48	0.82
14:N:-1:DA:C2	14:N:0:DG:C4	2.68	0.81
16:T:20:DG:H2''	16:T:21:DC:H5'	1.61	0.81
15:P:4:U:H2'	15:P:5:G:C8	2.16	0.80
17:V:42:ASP:OD2	26:e:63:ARG:HD3	1.81	0.80
21:q:793:VAL:HG11	21:q:830:LEU:HG	1.64	0.79
15:P:2:C:H2'	15:P:3:U:H6	1.49	0.77
27:b:32:PRO:HB2	27:b:36:ARG:NH1	1.98	0.77
16:T:34:DA:P	18:W:431:ARG:HH21	2.09	0.76
2:B:1166:CYS:HB3	2:B:1185:CYS:SG	2.26	0.75
15:P:6:G:H2'	15:P:7:C:H6	1.50	0.75
21:q:390:LEU:HB3	21:q:409:LEU:HD21	1.70	0.74
15:P:6:G:H2'	15:P:7:C:C6	2.23	0.74
15:P:2:C:H2'	15:P:3:U:C6	2.22	0.73
16:T:6:DC:H2''	16:T:7:DC:C5	2.23	0.73
16:T:46:DA:OP1	30:j:744:LYS:HE3	1.88	0.72
2:B:792:MET:HE2	2:B:857:ARG:HH22	1.54	0.72
31:k:374:GLY:HA2	31:k:387:THR:HG21	1.71	0.72
14:N:-68:DT:C5	14:N:-67:DT:H73	2.25	0.72
18:W:524:GLU:O	20:n:232:GLN:NE2	2.23	0.72
2:B:73:LYS:HG2	2:B:125:THR:HG22	1.70	0.72
1:A:807:ARG:NH1	2:B:724:LYS:O	2.23	0.71
14:N:-14:DA:C6	14:N:-13:DA:C6	2.78	0.71
14:N:-30:DA:H2'	14:N:-29:DT:H71	1.73	0.71
1:A:1207:LYS:O	1:A:1277:ARG:NH2	2.24	0.70
28:g:88:ARG:NH2	28:g:97:LEU:O	2.24	0.70
1:A:1262:MET:SD	1:A:1265:ARG:NH2	2.66	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:879:ARG:HH21	15:P:-3:A:H4'	1.57	0.69
21:q:578:GLN:NE2	21:q:582:ASP:OD1	2.26	0.69
1:A:831:LYS:NZ	1:A:1079:THR:O	2.25	0.69
2:B:550:PHE:HB3	2:B:593:MET:HE1	1.75	0.69
8:H:112:LYS:HG2	8:H:125:GLU:HG3	1.73	0.69
17:V:42:ASP:CB	26:e:63:ARG:HG2	2.23	0.69
19:m:382:PRO:HG2	19:m:955:ASN:HD22	1.58	0.69
19:m:1160:ASP:O	19:m:1163:ARG:NH1	2.26	0.69
14:N:-7:DG:C6	14:N:-6:DG:C6	2.80	0.68
21:q:531:GLU:O	21:q:535:ASN:N	2.26	0.68
21:q:922:ALA:O	21:q:926:ASN:ND2	2.26	0.68
18:W:303:ILE:HB	20:n:286:ARG:HH22	1.58	0.68
1:A:107:CYS:SG	1:A:172:GLN:NE2	2.66	0.68
10:J:47:ARG:NH1	10:J:48:MET:SD	2.68	0.67
31:k:374:GLY:CA	31:k:387:THR:HG21	2.23	0.67
31:k:386:ALA:O	31:k:387:THR:HG23	1.93	0.67
1:A:447:ARG:HB2	1:A:488:MET:HE3	1.77	0.67
2:B:223:SER:O	2:B:252:ARG:NH2	2.27	0.67
14:N:-47:DC:C2'	14:N:-46:DT:H71	2.25	0.67
21:q:169:ASP:OD1	21:q:185:LYS:NZ	2.28	0.67
14:N:-47:DC:H2''	14:N:-46:DT:H71	1.76	0.67
18:W:487:ILE:HD11	18:W:531:ARG:HB2	1.76	0.67
21:q:59:ALA:HB1	21:q:63:LEU:HD12	1.77	0.67
19:m:682:ASP:O	19:m:686:ASN:ND2	2.28	0.66
9:I:45:ARG:NH2	9:I:47:GLU:OE2	2.28	0.66
19:m:380:GLU:HG3	19:m:382:PRO:HD2	1.77	0.66
22:r:230:ARG:NH1	22:r:292:SER:OG	2.27	0.66
1:A:673:ASP:OD1	1:A:737:ASN:ND2	2.29	0.65
2:B:267:TYR:HB2	2:B:348:ILE:HD11	1.77	0.65
2:B:254:ASP:H	2:B:259:ARG:HH21	1.44	0.65
22:r:490:VAL:HG22	22:r:495:ARG:HE	1.60	0.65
3:C:266:ARG:HD2	11:K:84:LYS:HZ1	1.62	0.65
18:W:342:GLU:HB3	18:W:351:ARG:HB3	1.79	0.65
1:A:127:ARG:O	1:A:129:ARG:NH1	2.30	0.65
27:f:68:ASP:OD2	27:f:93:GLN:NE2	2.30	0.65
26:a:122:LYS:HD2	31:k:373:GLU:OE1	1.97	0.65
18:W:327:ARG:NH2	18:W:441:ASN:O	2.30	0.64
25:x:292:TRP:HA	25:x:295:LYS:HE2	1.79	0.64
19:m:617:ILE:HG13	19:m:649:LEU:HD11	1.78	0.64
2:B:613:ARG:HH21	9:I:62:ILE:HD11	1.61	0.64
16:T:27:DG:H1'	16:T:28:DG:H5'	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:53:ASN:ND2	3:C:59:ASP:OD1	2.24	0.64
20:n:260:MET:HG3	20:n:284:TRP:HZ3	1.63	0.64
21:q:31:LYS:HB2	21:q:57:GLU:HA	1.78	0.64
5:E:60:LEU:O	21:q:915:ARG:NH1	2.23	0.64
31:k:227:ASP:OD1	31:k:236:ARG:HG2	1.97	0.64
25:x:157:ARG:HB3	25:x:161:PRO:HB3	1.78	0.64
27:b:26:ILE:HG13	27:b:55:ARG:HD3	1.80	0.64
21:q:780:TYR:O	21:q:784:LYS:N	2.31	0.64
14:N:-30:DA:H2'	14:N:-29:DT:C7	2.28	0.64
1:A:887:ILE:O	1:A:945:ARG:NH2	2.30	0.64
2:B:285:PRO:HG2	2:B:288:GLU:HB2	1.80	0.64
21:q:793:VAL:HG13	21:q:826:ALA:HB1	1.79	0.64
4:D:153:VAL:HG13	4:D:171:LEU:HD23	1.78	0.63
1:A:361:GLU:OE1	1:A:460:ARG:NH2	2.29	0.63
1:A:466:TYR:HB2	1:A:470:ARG:HH22	1.63	0.63
17:V:89:ARG:NH1	17:V:109:ASP:OD2	2.31	0.63
22:r:269:ASP:HB3	22:r:349:LEU:HD21	1.80	0.63
1:A:881:ARG:HH21	1:A:955:ASN:HB3	1.64	0.63
1:A:1130:ILE:HG12	1:A:1134:LYS:HE2	1.81	0.63
1:A:1158:PRO:HA	1:A:1192:PRO:HB3	1.80	0.63
16:T:6:DC:H2''	16:T:7:DC:H5	1.63	0.63
21:q:210:PRO:O	21:q:217:ARG:NH2	2.25	0.63
11:K:57:THR:OG1	11:K:76:GLN:OE1	2.17	0.63
16:T:3:DT:H2'	16:T:4:DC:H6	1.60	0.63
21:q:155:TYR:HA	21:q:160:ARG:HD3	1.80	0.63
17:V:42:ASP:HB3	26:e:63:ARG:CG	2.26	0.62
19:m:343:ARG:NH1	19:m:347:GLN:OE1	2.31	0.62
21:q:590:ARG:NH1	21:q:618:THR:OG1	2.31	0.62
19:m:551:ARG:NH2	19:m:689:LYS:O	2.31	0.62
19:m:1101:ASP:OD1	19:m:1132:GLN:NE2	2.32	0.62
22:r:408:ASP:OD1	24:v:133:TYR:N	2.32	0.62
27:b:39:ARG:HD2	30:j:913:VAL:HG13	1.80	0.62
16:T:-7:DG:H2''	16:T:-6:DT:H71	1.81	0.62
5:E:47:ASP:OD2	5:E:53:GLN:NE2	2.19	0.62
21:q:65:LEU:HD13	24:v:81:ILE:HG12	1.81	0.62
19:m:607:ILE:HG22	19:m:719:VAL:HG11	1.82	0.62
16:T:24:DA:C8	16:T:24:DA:H5'	2.35	0.61
19:m:434:LEU:HD11	19:m:467:ASP:HB2	1.81	0.61
21:q:348:ASP:HB3	21:q:351:GLN:HB3	1.82	0.61
23:u:145:ILE:O	23:u:149:THR:OG1	2.17	0.61
26:a:69:ARG:HB3	27:b:25:ASN:HD22	1.65	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:351:ARG:HA	18:W:429:THR:HA	1.81	0.61
16:T:18:DC:C2'	16:T:19:DC:H5'	2.30	0.61
1:A:1201:ARG:NH2	1:A:1235:ALA:O	2.34	0.61
18:W:784:ASN:HB2	18:W:785:PRO:HD3	1.81	0.61
1:A:466:TYR:HB2	1:A:470:ARG:NH2	2.15	0.61
14:N:0:DG:C2	14:N:1:DC:C2	2.88	0.61
21:q:708:GLN:OE1	21:q:739:LYS:NZ	2.34	0.61
1:A:39:GLU:OE2	1:A:49:ARG:NH1	2.34	0.61
14:N:-69:DG:C2	16:T:70:DG:N2	2.68	0.61
14:N:-14:DA:N6	14:N:-13:DA:N6	2.47	0.61
17:V:13:MET:N	17:V:49:CYS:O	2.26	0.61
19:m:358:HIS:HB3	19:m:361:GLU:HB2	1.82	0.61
27:b:32:PRO:HB2	27:b:36:ARG:HH12	1.63	0.61
19:m:1221:LEU:HD11	19:m:1233:SER:HB2	1.81	0.61
23:u:108:VAL:HG22	23:u:219:VAL:HB	1.83	0.61
30:j:869:ASN:ND2	30:j:890:PRO:HA	2.15	0.61
5:E:19:LYS:NZ	5:E:33:GLU:O	2.34	0.60
26:a:112:ILE:HG21	30:j:888:THR:HB	1.83	0.60
23:u:80:TYR:CZ	24:v:356:ASN:HB2	2.36	0.60
15:P:4:U:H2'	15:P:5:G:H8	1.63	0.60
23:u:199:LEU:HD11	24:v:211:PHE:HB3	1.81	0.60
1:A:22:LEU:HG	2:B:1213:ALA:HB2	1.83	0.60
16:T:20:DG:H2'	16:T:21:DC:C6	2.36	0.60
19:m:421:ASP:OD1	19:m:422:LEU:N	2.34	0.60
18:W:527:THR:HA	18:W:530:LEU:HD12	1.84	0.60
19:m:570:MET:HA	19:m:577:THR:HG21	1.84	0.60
19:m:730:ASP:OD1	19:m:733:ARG:NH2	2.34	0.60
30:j:824:VAL:HG23	30:j:888:THR:HG22	1.83	0.60
16:T:25:DG:C8	16:T:25:DG:H5''	2.37	0.60
19:m:672:VAL:O	19:m:720:GLN:NE2	2.34	0.60
2:B:235:LEU:HD23	2:B:242:ILE:HG13	1.83	0.59
2:B:294:CYS:SG	2:B:295:TYR:N	2.75	0.59
20:n:217:ARG:HG3	20:n:259:VAL:HG21	1.84	0.59
1:A:677:MET:HG3	2:B:722:THR:HB	1.84	0.59
2:B:489:ARG:NH2	2:B:533:SER:O	2.35	0.59
2:B:926:GLY:O	19:m:778:ALA:N	2.31	0.59
19:m:458:ARG:HG3	19:m:459:THR:HG23	1.83	0.59
19:m:785:ASP:O	19:m:912:GLN:NE2	2.35	0.59
24:v:29:LEU:N	25:x:147:ARG:O	2.35	0.59
14:N:-14:DA:N1	14:N:-13:DA:C2	2.71	0.59
17:V:57:LEU:HD11	17:V:81:LEU:HD22	1.84	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1157:ASP:O	1:A:1243:ARG:NH2	2.29	0.59
2:B:409:LEU:HD23	2:B:450:LEU:HD23	1.85	0.59
8:H:48:PRO:O	8:H:145:ARG:NH1	2.36	0.59
19:m:424:TYR:HA	19:m:427:ILE:HG12	1.84	0.59
7:G:27:ARG:NH1	7:G:54:ILE:O	2.36	0.59
16:T:20:DG:H2'	16:T:21:DC:H6	1.66	0.59
21:q:253:ILE:HG12	21:q:297:LEU:HD21	1.84	0.59
7:G:102:ASP:OD1	7:G:107:ASN:ND2	2.32	0.59
16:T:18:DC:H2''	16:T:19:DC:H5'	1.85	0.59
1:A:227:GLU:OE1	1:A:231:ARG:NH1	2.36	0.59
2:B:10:ASP:HB3	2:B:649:LYS:HG3	1.84	0.59
21:q:72:VAL:HG21	24:v:75:LEU:HD13	1.85	0.59
14:N:0:DG:N2	14:N:1:DC:C2	2.71	0.58
21:q:690:LYS:NZ	25:x:178:GLU:OE1	2.36	0.58
23:u:191:THR:HG22	23:u:219:VAL:HG22	1.86	0.58
2:B:50:VAL:HG21	2:B:82:ILE:HD11	1.85	0.58
21:q:806:LEU:O	21:q:811:ARG:NH1	2.36	0.58
21:q:766:MET:HG3	21:q:770:LYS:HE3	1.86	0.58
24:v:267:TYR:HB3	24:v:297:TYR:HB3	1.85	0.58
27:b:30:THR:C	27:b:32:PRO:HD2	2.28	0.58
1:A:1331:TYR:OH	1:A:1354:GLU:OE2	2.21	0.58
2:B:928:ARG:NH2	19:m:777:ASP:O	2.36	0.58
17:V:9:GLU:HA	17:V:20:PRO:HA	1.84	0.58
19:m:1425:LYS:NZ	19:m:1430:SER:O	2.30	0.58
1:A:149:GLU:HB2	1:A:165:ARG:HD3	1.84	0.58
22:r:194:LYS:HB2	22:r:316:LEU:HD12	1.84	0.58
24:v:312:LYS:HB3	24:v:315:GLU:HG2	1.84	0.58
26:a:69:ARG:HB3	27:b:25:ASN:ND2	2.18	0.58
1:A:85:GLU:O	1:A:274:ASN:ND2	2.33	0.58
14:N:-68:DT:C6	14:N:-67:DT:C7	2.87	0.58
19:m:309:ARG:HH21	19:m:978:CYS:HA	1.69	0.58
2:B:63:GLN:NE2	2:B:70:ASN:OD1	2.35	0.57
18:W:392:ARG:NH1	18:W:398:GLU:OE1	2.36	0.57
24:v:56:LYS:O	24:v:60:ARG:NH2	2.37	0.57
30:j:655:VAL:HG11	30:j:740:MET:HG3	1.86	0.57
5:E:101:GLU:HG3	5:E:102:LYS:HG2	1.86	0.57
14:N:-2:DC:H2'	14:N:-1:DA:C8	2.39	0.57
17:V:58:VAL:N	17:V:82:TYR:O	2.38	0.57
19:m:1170:VAL:O	19:m:1215:THR:OG1	2.19	0.57
1:A:999:LEU:O	1:A:1013:GLN:NE2	2.37	0.57
7:G:86:VAL:HG22	7:G:146:LYS:HB2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:38:ALA:HA	3:C:164:ALA:HB3	1.85	0.57
19:m:245:THR:HA	19:m:248:GLN:HB2	1.86	0.57
23:u:121:PHE:HB3	23:u:153:ARG:HB3	1.85	0.57
1:A:568:LYS:HG2	1:A:569:PRO:HA	1.87	0.57
18:W:352:LEU:HD11	18:W:435:LEU:HD11	1.87	0.57
2:B:353:LEU:O	2:B:367:LYS:NZ	2.34	0.57
16:T:23:DA:H1'	16:T:24:DA:C5'	2.34	0.57
19:m:1177:SER:O	19:m:1194:ARG:NH1	2.37	0.57
15:P:-4:A:N3	15:P:-4:A:H2'	2.19	0.57
14:N:-51:DG:H2''	14:N:-50:DT:C5	2.40	0.57
18:W:665:ARG:HB2	18:W:708:ILE:HD11	1.87	0.56
31:k:103:LYS:HE2	31:k:130:PRO:HG3	1.86	0.56
18:W:327:ARG:NH1	18:W:335:GLY:O	2.36	0.56
14:N:-2:DC:H2'	14:N:-1:DA:H8	1.70	0.56
16:T:0:DC:H2'	16:T:1:DT:C6	2.40	0.56
19:m:529:ILE:HD11	19:m:566:ILE:HG12	1.87	0.56
30:j:609:GLY:HA3	30:j:612:LYS:HD2	1.86	0.56
2:B:336:ILE:O	2:B:341:ARG:NH1	2.38	0.56
5:E:28:PHE:HB2	5:E:64:THR:HG22	1.88	0.56
2:B:290:LEU:HD21	2:B:310:ILE:HD11	1.87	0.56
14:N:-52:DC:H2''	14:N:-51:DG:C8	2.40	0.56
31:k:386:ALA:O	31:k:387:THR:CG2	2.54	0.56
1:A:119:ASN:OD1	1:A:121:THR:OG1	2.23	0.56
1:A:669:ASP:OD2	1:A:743:ASN:ND2	2.29	0.56
6:F:103:MET:HE3	7:G:15:PRO:HG2	1.87	0.56
23:u:209:LEU:HB2	24:v:252:PHE:HB2	1.87	0.56
16:T:17:DA:H2'	16:T:18:DC:C6	2.40	0.56
18:W:220:THR:N	18:W:223:ASP:OD2	2.32	0.56
3:C:175:ALA:HB2	10:J:10:CYS:HB2	1.88	0.55
2:B:72:ASN:ND2	2:B:128:ASP:OD1	2.39	0.55
24:v:316:ASP:HB2	24:v:333:ILE:HB	1.88	0.55
14:N:-14:DA:N6	14:N:-13:DA:N1	2.54	0.55
1:A:1452:LEU:HD23	6:F:131:PRO:HA	1.88	0.55
8:H:100:VAL:HG22	8:H:115:VAL:HG22	1.89	0.55
14:N:-4:DG:H2'	14:N:-3:DA:O4'	2.07	0.55
16:T:0:DC:H2''	16:T:1:DT:O4'	2.06	0.55
17:V:15:CYS:HB3	17:V:32:CYS:SG	2.46	0.55
22:r:223:VAL:HG22	22:r:325:GLN:HG2	1.88	0.55
18:W:325:TYR:OH	18:W:451:GLN:OE1	2.23	0.55
31:k:108:ARG:CZ	31:k:127:ASN:HD22	2.19	0.55
2:B:622:ASP:OD1	2:B:623:VAL:N	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:232:ARG:HH12	18:W:235:LYS:HE3	1.70	0.55
30:j:583:TYR:HB3	30:j:621:ARG:HB2	1.88	0.55
2:B:904:ARG:HH12	2:B:946:ASN:HB2	1.72	0.55
18:W:444:LEU:HB2	19:m:288:GLU:OE2	2.06	0.55
19:m:465:ASP:OD1	19:m:604:ARG:NH1	2.40	0.55
1:A:1210:THR:HB	1:A:1213:GLN:HG3	1.89	0.55
21:q:239:ASN:HA	21:q:242:LYS:HD2	1.89	0.55
1:A:149:GLU:O	1:A:165:ARG:NH1	2.38	0.54
20:n:163:LEU:HD11	20:n:194:VAL:HG22	1.88	0.54
21:q:569:ASN:O	21:q:603:LYS:NZ	2.40	0.54
19:m:956:LEU:HD11	19:m:1138:ILE:HG21	1.88	0.54
7:G:151:ARG:HB3	7:G:158:TYR:HB2	1.89	0.54
14:N:-5:DG:N2	16:T:6:DC:O2	2.39	0.54
21:q:155:TYR:HB3	21:q:160:ARG:HB2	1.89	0.54
21:q:766:MET:HE1	21:q:799:ILE:HG23	1.89	0.54
24:v:54:PHE:O	24:v:58:ASN:N	2.34	0.54
1:A:569:PRO:HD2	8:H:46:MET:HE2	1.89	0.54
22:r:200:ASP:HB3	22:r:319:VAL:HG11	1.87	0.54
23:u:89:SER:HB3	24:v:365:ARG:HE	1.73	0.54
24:v:258:ASN:OD1	24:v:261:ASN:N	2.40	0.54
1:A:327:ARG:HG3	1:A:1409:VAL:HG21	1.89	0.54
14:N:4:DG:C2	16:T:-3:DG:C2	2.95	0.54
21:q:218:LEU:HA	21:q:237:TRP:HE1	1.73	0.54
2:B:91:GLU:OE2	2:B:97:HIS:NE2	2.29	0.54
2:B:1084:GLN:HG2	3:C:201:TRP:CH2	2.41	0.54
11:K:103:HIS:NE2	11:K:107:GLU:OE2	2.40	0.54
19:m:533:VAL:HG22	19:m:589:VAL:HG13	1.90	0.54
16:T:-7:DG:H1'	16:T:-6:DT:C6	2.42	0.54
23:u:80:TYR:OH	24:v:352:VAL:O	2.22	0.54
1:A:807:ARG:HD3	2:B:725:ARG:HA	1.89	0.54
11:K:29:ASN:ND2	11:K:78:GLU:O	2.41	0.54
19:m:300:VAL:O	19:m:304:THR:OG1	2.20	0.54
19:m:956:LEU:O	19:m:1046:ARG:NH2	2.38	0.54
19:m:1205:ASP:OD2	19:m:1207:ARG:NH2	2.40	0.54
21:q:41:PHE:CG	21:q:70:VAL:HG11	2.42	0.54
1:A:218:GLU:OE1	1:A:222:ARG:NH1	2.41	0.54
7:G:144:ARG:HB2	7:G:171:ILE:HD13	1.90	0.54
16:T:46:DA:OP1	30:j:744:LYS:NZ	2.41	0.54
19:m:236:GLU:OE2	20:n:252:ARG:NH2	2.41	0.54
2:B:58:LEU:O	2:B:75:TYR:N	2.36	0.54
8:H:15:VAL:HG22	8:H:26:ILE:HG22	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:q:641:ALA:HB1	21:q:655:LYS:HG3	1.89	0.53
2:B:245:MET:HE1	2:B:371:LEU:HD11	1.91	0.53
4:D:6:SER:HB3	7:G:42:PHE:HZ	1.73	0.53
16:T:24:DA:H2"	16:T:25:DG:H5"	1.90	0.53
1:A:351:ARG:HB2	2:B:1128:LEU:HD21	1.91	0.53
1:A:533:ARG:HD3	1:A:750:ALA:HB2	1.91	0.53
1:A:1426:GLY:O	1:A:1430:ASN:ND2	2.40	0.53
21:q:170:ASN:HA	21:q:173:LYS:HD2	1.91	0.53
24:v:74:TYR:HE1	24:v:87:LEU:HD12	1.73	0.53
26:e:109:LEU:HD22	31:k:430:ASN:CG	2.33	0.53
31:k:385:PHE:CZ	31:k:387:THR:OG1	2.62	0.53
18:W:317:ASP:O	18:W:318:VAL:C	2.51	0.53
19:m:1047:ILE:HG12	19:m:1127:ILE:HG12	1.90	0.53
20:n:229:PRO:O	20:n:234:GLN:NE2	2.37	0.53
13:M:46:LEU:HD11	13:M:55:SER:HB3	1.90	0.53
21:q:317:LEU:HD23	22:r:514:LEU:HD12	1.91	0.53
26:a:112:ILE:HD13	30:j:888:THR:HB	1.90	0.53
2:B:59:ASP:HB3	2:B:74:ARG:HG3	1.91	0.53
5:E:118:SER:OG	14:N:0:DG:OP1	2.22	0.53
19:m:1024:TYR:CG	19:m:1135:TYR:HE2	2.26	0.53
2:B:592:THR:HG23	23:u:226:PHE:CE1	2.44	0.53
10:J:23:ARG:NH2	22:r:399:LYS:HZ1	2.07	0.53
17:V:10:ARG:HA	17:V:52:SER:HA	1.90	0.53
24:v:262:LYS:HD3	24:v:305:GLN:HE21	1.74	0.53
2:B:248:LYS:NZ	2:B:264:THR:OG1	2.41	0.52
2:B:301:GLN:O	2:B:304:GLU:HG3	2.08	0.52
14:N:-68:DT:C6	14:N:-67:DT:H71	2.43	0.52
18:W:451:GLN:NE2	18:W:454:GLU:OE1	2.41	0.52
2:B:1163:CYS:HB3	2:B:1166:CYS:SG	2.49	0.52
4:D:60:ILE:HG13	7:G:47:THR:HG21	1.91	0.52
14:N:-5:DG:N2	16:T:6:DC:C2	2.77	0.52
21:q:309:GLU:OE1	21:q:311:TYR:OH	2.20	0.52
1:A:1153:GLU:OE2	9:I:45:ARG:NH1	2.40	0.52
2:B:792:MET:HE3	16:T:22:DC:OP1	2.09	0.52
14:N:-52:DC:H5	30:j:595:MET:HG3	1.75	0.52
5:E:81:PHE:HE1	5:E:110:ILE:HD13	1.74	0.52
8:H:59:LEU:HD23	8:H:139:LEU:HD13	1.91	0.52
17:V:10:ARG:HG2	17:V:52:SER:HB3	1.92	0.52
18:W:513:SER:N	18:W:519:ASN:OD1	2.41	0.52
21:q:404:GLU:OE1	21:q:404:GLU:N	2.42	0.52
1:A:977:ARG:HD2	1:A:979:LYS:HZ1	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:T:20:DG:H2''	16:T:21:DC:C5'	2.37	0.52
19:m:338:LEU:HD11	19:m:417:ILE:HD11	1.91	0.52
26:a:130:ILE:HA	31:k:413:ARG:NH2	2.24	0.52
16:T:6:DC:C2'	16:T:7:DC:C5	2.93	0.52
19:m:1056:ARG:HB3	19:m:1076:MET:HB3	1.91	0.52
24:v:210:VAL:HG13	24:v:334:VAL:HG21	1.92	0.52
29:h:102:GLU:HG3	29:h:106:HIS:CD2	2.44	0.52
13:M:38:LEU:HA	13:M:45:GLY:HA2	1.91	0.52
14:N:-58:DC:H2''	14:N:-57:DT:H5'	1.92	0.52
19:m:465:ASP:OD2	19:m:608:ARG:NH2	2.43	0.52
21:q:451:ARG:NH1	24:v:35:GLU:OE1	2.42	0.52
1:A:89:PRO:HB3	1:A:238:THR:HG22	1.92	0.52
16:T:22:DC:H1'	16:T:23:DA:H5'	1.92	0.52
21:q:871:TYR:CZ	21:q:875:ILE:HD11	2.45	0.52
14:N:-49:DG:H2''	14:N:-48:DC:C5	2.44	0.51
18:W:590:ILE:O	18:W:593:SER:OG	2.26	0.51
19:m:1121:ARG:HA	19:m:1124:LEU:HD12	1.91	0.51
2:B:74:ARG:HB2	2:B:124:PHE:HB2	1.92	0.51
2:B:86:ARG:NH1	22:r:369:GLU:OE2	2.44	0.51
11:K:65:HIS:HB3	11:K:68:PHE:HD2	1.75	0.51
14:N:5:DT:H2'	14:N:6:DA:C8	2.45	0.51
1:A:916:TYR:OH	1:A:983:LEU:O	2.19	0.51
2:B:316:ILE:HG23	2:B:321:VAL:HG23	1.92	0.51
2:B:797:TYR:HE1	2:B:854:LEU:HD13	1.74	0.51
2:B:904:ARG:NH1	2:B:905:VAL:O	2.43	0.51
18:W:260:TYR:HD1	18:W:276:ALA:HA	1.75	0.51
19:m:995:ILE:HD12	19:m:1010:LEU:HD21	1.92	0.51
24:v:233:GLY:O	24:v:244:ASN:ND2	2.44	0.51
18:W:326:VAL:HA	18:W:440:ILE:HD13	1.92	0.51
26:a:122:LYS:HB2	31:k:373:GLU:OE1	2.11	0.51
19:m:1062:ALA:HB3	19:m:1083:MET:HE1	1.92	0.51
1:A:801:VAL:HG22	1:A:813:GLU:HB3	1.92	0.51
2:B:547:ILE:HG21	2:B:619:ILE:HG21	1.93	0.51
21:q:286:SER:HA	21:q:289:LYS:HD2	1.92	0.51
1:A:1150:SER:OG	1:A:1198:GLU:OE1	2.29	0.51
9:I:17:LYS:N	9:I:26:LEU:O	2.39	0.51
13:M:33:SER:HA	13:M:50:LYS:HE2	1.93	0.51
14:N:-57:DT:H2''	14:N:-56:DG:C8	2.45	0.51
18:W:644:ASN:ND2	18:W:647:GLN:OE1	2.44	0.51
22:r:276:PHE:HB2	22:r:279:GLN:HB2	1.92	0.51
24:v:104:PRO:HA	24:v:107:ARG:HD3	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:10:PRO:HG2	2:B:1192:TYR:HD1	1.74	0.51
5:E:87:VAL:HG23	5:E:91:THR:HB	1.91	0.51
21:q:250:ASN:HA	21:q:253:ILE:HD12	1.91	0.51
1:A:771:VAL:HG13	1:A:823:GLU:HG3	1.92	0.51
21:q:718:HIS:ND1	21:q:733:TYR:OH	2.39	0.50
2:B:556:MET:HE3	2:B:581:GLY:HA3	1.93	0.50
18:W:563:GLU:HG2	18:W:574:ILE:HG12	1.92	0.50
19:m:1046:ARG:HG3	19:m:1135:TYR:HE1	1.75	0.50
21:q:109:PHE:CD1	21:q:130:ALA:HB1	2.46	0.50
22:r:261:LEU:HB3	22:r:266:ASN:HB3	1.93	0.50
2:B:83:TYR:HB2	2:B:116:TYR:HB2	1.92	0.50
19:m:244:GLY:O	19:m:248:GLN:N	2.44	0.50
18:W:334:LYS:N	18:W:388:ARG:HH12	2.09	0.50
21:q:274:THR:HG23	22:r:506:ILE:HG12	1.93	0.50
28:g:55:LEU:O	28:g:59:THR:HG23	2.11	0.50
2:B:436:ASN:C	2:B:438:ASN:H	2.20	0.50
2:B:505:ARG:NH1	2:B:524:GLN:O	2.32	0.50
5:E:28:PHE:HE2	21:q:915:ARG:HB2	1.75	0.50
18:W:494:LEU:HD21	20:n:183:PRO:HG3	1.92	0.50
19:m:766:LEU:HD13	19:m:783:PHE:HB2	1.93	0.50
21:q:189:LEU:HD22	21:q:194:LYS:HD2	1.94	0.50
21:q:408:LEU:HD13	24:v:44:LEU:HD22	1.92	0.50
2:B:607:SER:HB3	2:B:620:PHE:HB2	1.94	0.50
14:N:-7:DG:C6	14:N:-6:DG:N1	2.79	0.50
19:m:840:ASN:O	19:m:844:ASN:ND2	2.44	0.50
19:m:1172:VAL:HA	19:m:1182:VAL:HG12	1.94	0.50
20:n:206:SER:O	20:n:210:ASN:ND2	2.44	0.50
23:u:170:ILE:HD11	24:v:200:PHE:HD1	1.76	0.50
27:b:98:TYR:HB3	29:h:58:ILE:HG23	1.94	0.50
27:f:75:HIS:O	29:h:89:ARG:NH1	2.45	0.50
27:f:89:ALA:O	27:f:93:GLN:HG2	2.10	0.50
14:N:-61:DT:H2''	14:N:-60:DT:C7	2.41	0.50
17:V:63:ASN:HB3	17:V:75:ASP:HA	1.94	0.50
21:q:676:ASN:HA	25:x:156:LEU:HD12	1.93	0.50
24:v:263:TRP:HE1	24:v:356:ASN:HD21	1.59	0.50
26:e:129:ARG:HH11	26:e:129:ARG:HG2	1.77	0.50
19:m:933:HIS:HB3	19:m:936:LEU:HD12	1.94	0.50
19:m:1257:ILE:HG22	19:m:1261:ASN:HD21	1.77	0.50
1:A:1190:GLN:HA	1:A:1245:ILE:HA	1.94	0.50
4:D:105:THR:HG22	7:G:105:PRO:HD3	1.94	0.50
16:T:28:DG:C6	16:T:29:DA:C6	2.99	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:m:343:ARG:NH2	19:m:344:ASP:OD1	2.45	0.50
21:q:568:SER:O	21:q:571:ASN:ND2	2.45	0.50
19:m:725:GLU:OE2	19:m:728:ARG:NH2	2.45	0.49
21:q:160:ARG:NH2	21:q:163:GLU:OE1	2.44	0.49
19:m:1027:PHE:HB3	19:m:1134:ARG:HH12	1.76	0.49
22:r:244:LYS:NZ	22:r:305:GLU:OE2	2.37	0.49
26:a:63:ARG:HB3	26:a:66:PRO:HD2	1.94	0.49
2:B:300:TRP:HA	2:B:303:LEU:HD12	1.94	0.49
14:N:2:DG:N2	14:N:3:DC:O2	2.45	0.49
2:B:479:TYR:CZ	2:B:1096:ARG:HB3	2.48	0.49
2:B:887:HIS:HB2	15:P:-3:A:C2	2.46	0.49
7:G:119:LEU:HD21	7:G:135:GLU:HB2	1.93	0.49
2:B:498:ASP:HB3	14:N:-15:DA:C4	2.47	0.49
16:T:23:DA:H1'	16:T:24:DA:H5'	1.93	0.49
19:m:562:PRO:HG3	19:m:700:TRP:CE3	2.47	0.49
19:m:1202:ASP:OD2	19:m:1204:ARG:NE	2.44	0.49
26:a:105:GLU:HB3	30:j:868:LYS:HD2	1.94	0.49
1:A:122:MET:O	1:A:126:ILE:HG12	2.13	0.49
1:A:673:ASP:OD1	1:A:673:ASP:N	2.44	0.49
1:A:1223:SER:OG	1:A:1224:ASP:N	2.44	0.49
19:m:242:GLY:HA3	20:n:258:LYS:HG2	1.94	0.49
19:m:655:LEU:HG	19:m:659:MET:HE3	1.95	0.49
21:q:305:TYR:CZ	22:r:512:LEU:HD11	2.48	0.49
1:A:168:CYS:SG	1:A:170:ASN:ND2	2.85	0.49
2:B:74:ARG:HH22	2:B:126:SER:HB3	1.77	0.49
14:N:-7:DG:N1	14:N:-6:DG:C2	2.81	0.49
7:G:112:THR:HA	7:G:115:ILE:HD12	1.95	0.49
16:T:25:DG:C8	16:T:25:DG:C5'	2.96	0.49
21:q:816:LEU:HD13	21:q:865:ILE:HA	1.95	0.49
2:B:759:PRO:HD2	2:B:1046:PRO:HB3	1.94	0.49
2:B:928:ARG:NH1	19:m:776:GLY:H	2.11	0.49
19:m:1170:VAL:HG12	19:m:1184:THR:HG22	1.95	0.49
1:A:738:LEU:HD13	1:A:742:ASN:HD22	1.77	0.49
2:B:610:ARG:NH2	9:I:61:ASP:OD2	2.46	0.49
19:m:823:ILE:HB	19:m:873:VAL:HG22	1.95	0.49
26:e:61:LEU:HD12	27:f:37:LEU:HD23	1.95	0.49
1:A:823:GLU:OE1	2:B:506:GLN:NE2	2.46	0.48
3:C:66:LEU:HD11	3:C:155:ILE:HD12	1.95	0.48
3:C:105:GLU:N	3:C:105:GLU:OE1	2.46	0.48
9:I:96:ASN:OD1	9:I:97:MET:N	2.46	0.48
12:L:70:ASP:HB3	18:W:784:ASN:HB3	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:464:ILE:O	18:W:468:LEU:HG	2.12	0.48
27:f:93:GLN:HB2	27:f:95:ARG:HG2	1.95	0.48
28:g:41:GLU:HB2	29:h:84:SER:HB2	1.95	0.48
2:B:514:LEU:HD22	2:B:626:VAL:HG12	1.94	0.48
5:E:81:PHE:CE1	5:E:110:ILE:HD13	2.48	0.48
14:N:-58:DC:OP1	27:b:32:PRO:HD3	2.12	0.48
18:W:634:PRO:HA	18:W:637:ILE:HD12	1.94	0.48
14:N:-52:DC:C5	30:j:595:MET:HG3	2.47	0.48
15:P:8:G:H2'	15:P:8:G:N3	2.28	0.48
20:n:207:ILE:HG23	20:n:212:LEU:HB3	1.94	0.48
23:u:202:GLU:HB3	24:v:210:VAL:HB	1.96	0.48
2:B:314:PHE:O	2:B:317:GLN:NE2	2.46	0.48
2:B:365:THR:O	2:B:368:THR:OG1	2.29	0.48
18:W:222:ASP:O	18:W:277:ARG:NH2	2.30	0.48
28:g:79:ILE:HG12	28:g:82:HIS:CE1	2.48	0.48
9:I:103:CYS:SG	9:I:104:LEU:N	2.86	0.48
20:n:163:LEU:HD22	20:n:197:ILE:HD13	1.96	0.48
21:q:312:GLU:O	21:q:316:LYS:HG3	2.13	0.48
22:r:493:ASN:HB2	22:r:502:ILE:HD11	1.95	0.48
24:v:36:LYS:HB2	24:v:39:PRO:HD2	1.95	0.48
24:v:304:ASP:OD2	24:v:340:LYS:NZ	2.45	0.48
18:W:666:GLU:HB2	18:W:671:ARG:HA	1.95	0.48
19:m:770:PHE:HB3	19:m:779:VAL:HG22	1.95	0.48
19:m:1062:ALA:HA	19:m:1103:LEU:HD21	1.96	0.48
19:m:1365:GLU:O	19:m:1369:ASN:ND2	2.46	0.48
21:q:607:LYS:HB2	21:q:610:LEU:HB2	1.96	0.48
22:r:206:PHE:HB2	22:r:227:MET:HE1	1.96	0.48
30:j:549:ILE:HD11	30:j:631:VAL:HG13	1.95	0.48
1:A:63:ARG:NH2	15:P:0:C:OP1	2.47	0.48
19:m:681:VAL:HG13	19:m:708:TRP:HE1	1.79	0.48
2:B:318:ASP:HB3	2:B:321:VAL:HG22	1.94	0.48
2:B:766:ARG:HH21	2:B:1020:ARG:HD3	1.77	0.48
17:V:91:PRO:HD2	17:V:94:ILE:HB	1.95	0.48
22:r:208:ARG:N	22:r:291:ASP:OD1	2.44	0.48
2:B:788:ARG:O	2:B:967:ARG:NH1	2.47	0.48
15:P:5:G:C2	15:P:6:G:C5	3.02	0.48
19:m:1279:ARG:NH1	19:m:1315:SER:O	2.47	0.48
23:u:204:ASN:OD1	23:u:205:GLU:N	2.47	0.48
1:A:418:TYR:HE2	15:P:-2:U:O4	1.97	0.48
18:W:603:GLN:HG3	18:W:609:VAL:HG22	1.95	0.48
19:m:1427:ASN:OD1	19:m:1430:SER:N	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:v:199:HIS:O	24:v:328:ALA:N	2.47	0.48
25:x:311:GLY:HA3	25:x:330:VAL:HG12	1.96	0.48
3:C:88:GLU:HG2	18:W:759:ARG:HD2	1.95	0.47
5:E:213:CYS:SG	5:E:214:LEU:N	2.87	0.47
14:N:-28:DC:C4	14:N:-27:DC:N4	2.82	0.47
19:m:1003:ALA:O	19:m:1007:THR:HG23	2.14	0.47
21:q:185:LYS:O	21:q:189:LEU:HG	2.14	0.47
21:q:261:ASP:O	21:q:265:ASN:ND2	2.36	0.47
2:B:865:ARG:HD3	2:B:871:VAL:HG12	1.95	0.47
15:P:0:C:O2'	15:P:1:C:OP2	2.27	0.47
18:W:599:HIS:HB3	18:W:677:LEU:HD21	1.96	0.47
19:m:977:VAL:HB	19:m:980:LEU:HD12	1.94	0.47
19:m:1425:LYS:HE3	19:m:1428:PRO:HA	1.96	0.47
24:v:89:LYS:O	24:v:93:SER:N	2.46	0.47
28:g:29:ARG:HG3	28:g:32:ARG:NH2	2.29	0.47
30:j:644:LYS:HE2	30:j:648:GLU:OE2	2.15	0.47
31:k:239:ILE:CG2	31:k:246:LEU:HD11	2.43	0.47
16:T:34:DA:P	18:W:431:ARG:NH2	2.82	0.47
18:W:666:GLU:HA	18:W:705:VAL:HG12	1.95	0.47
19:m:965:VAL:HG22	19:m:989:ILE:HG13	1.95	0.47
21:q:320:LEU:O	21:q:324:GLU:HG2	2.14	0.47
22:r:366:GLU:O	22:r:369:GLU:HG2	2.15	0.47
1:A:321:ARG:NH1	2:B:466:MET:SD	2.86	0.47
2:B:303:LEU:O	2:B:307:LYS:HG2	2.15	0.47
5:E:91:THR:HA	5:E:94:ASN:ND2	2.29	0.47
5:E:93:ARG:HA	5:E:122:MET:HE1	1.96	0.47
29:h:42:LEU:HD22	29:h:51:ILE:HG13	1.96	0.47
29:h:89:ARG:O	29:h:93:THR:HG23	2.15	0.47
1:A:106:ILE:HD13	1:A:215:ILE:HD11	1.95	0.47
31:k:108:ARG:NH2	31:k:127:ASN:HD22	2.11	0.47
18:W:704:ARG:NH1	19:m:632:GLU:OE2	2.43	0.47
21:q:4:LEU:HB2	24:v:103:HIS:CE1	2.49	0.47
22:r:263:SER:OG	22:r:264:LYS:N	2.47	0.47
2:B:421:ILE:HD11	2:B:441:VAL:HG12	1.97	0.47
2:B:879:ARG:NH2	15:P:-3:A:H4'	2.27	0.47
2:B:896:ASP:OD2	12:L:31:TYR:OH	2.32	0.47
3:C:4:GLU:HB3	3:C:5:PRO:HD3	1.96	0.47
4:D:157:ILE:HG23	4:D:164:ALA:HB2	1.95	0.47
18:W:461:LEU:HA	18:W:464:ILE:HB	1.97	0.47
19:m:1337:GLU:HB2	19:m:1348:VAL:HB	1.95	0.47
21:q:710:LEU:HD11	21:q:748:LEU:HD11	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:r:212:SER:HA	22:r:215:TRP:HD1	1.79	0.47
1:A:976:ASP:O	1:A:979:LYS:NZ	2.48	0.47
7:G:123:PRO:HA	7:G:128:PRO:HB3	1.97	0.47
15:P:-5:U:H1'	18:W:748:ARG:HD3	1.96	0.47
18:W:260:TYR:CE1	18:W:277:ARG:HG3	2.49	0.47
19:m:1072:ASP:O	19:m:1076:MET:HG2	2.15	0.47
28:g:29:ARG:HG3	28:g:32:ARG:HH21	1.78	0.47
1:A:363:ASP:HB3	1:A:509:PRO:HD3	1.96	0.47
1:A:472:ASN:O	1:A:475:VAL:HG22	2.14	0.47
1:A:580:SER:HB3	1:A:612:LYS:HA	1.97	0.47
10:J:6:ARG:HD3	10:J:13:VAL:HG22	1.97	0.47
14:N:-68:DT:C6	14:N:-67:DT:H73	2.50	0.47
21:q:215:ASP:OD1	21:q:217:ARG:NH1	2.47	0.47
26:a:93:GLN:O	26:a:97:GLU:HG3	2.15	0.47
1:A:983:LEU:HD13	1:A:1041:ARG:HA	1.97	0.47
1:A:1192:PRO:HA	1:A:1243:ARG:HH12	1.79	0.47
16:T:60:DA:C2	16:T:61:DA:C2	3.03	0.47
19:m:622:THR:O	19:m:626:LYS:N	2.41	0.47
19:m:1426:LEU:HD13	19:m:1469:ARG:HH21	1.80	0.47
21:q:710:LEU:HD13	21:q:740:PHE:HB2	1.97	0.47
22:r:346:LYS:O	22:r:350:SER:N	2.48	0.47
23:u:90:LEU:HB2	24:v:362:MET:HE1	1.96	0.47
9:I:29:CYS:CB	9:I:32:CYS:SG	2.99	0.46
15:P:1:C:H2'	15:P:2:C:O4'	2.15	0.46
20:n:208:LEU:HD13	20:n:250:HIS:CE1	2.50	0.46
21:q:155:TYR:HB2	21:q:164:ALA:HB2	1.96	0.46
22:r:408:ASP:OD2	24:v:134:VAL:HG23	2.15	0.46
2:B:273:PRO:HG2	2:B:276:ILE:HD12	1.98	0.46
2:B:322:ALA:O	2:B:326:ILE:HG12	2.15	0.46
14:N:-57:DT:H1'	14:N:-56:DG:C8	2.50	0.46
17:V:41:SER:HB2	17:V:45:THR:HB	1.96	0.46
1:A:543:GLU:OE2	1:A:570:LYS:NZ	2.43	0.46
1:A:819:MET:O	1:A:823:GLU:HG2	2.14	0.46
1:A:912:ASP:OD1	1:A:912:ASP:N	2.44	0.46
19:m:380:GLU:HG2	19:m:978:CYS:HB2	1.97	0.46
19:m:1426:LEU:HD21	19:m:1465:MET:HE2	1.97	0.46
21:q:4:LEU:HD22	24:v:105:ASP:HB2	1.97	0.46
23:u:173:TRP:NE1	23:u:179:SER:OG	2.36	0.46
25:x:173:LEU:HA	25:x:177:LYS:HD2	1.98	0.46
2:B:25:PHE:HZ	2:B:534:LEU:HG	1.81	0.46
2:B:101:PRO:HG2	2:B:172:LEU:HD11	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:139:PRO:HA	4:D:142:ILE:HD12	1.97	0.46
4:D:170:ASN:HB3	4:D:173:ARG:HG2	1.96	0.46
5:E:96:CYS:SG	5:E:126:VAL:HG23	2.55	0.46
5:E:98:ARG:NH1	5:E:102:LYS:HG3	2.31	0.46
11:K:62:LYS:HE3	11:K:64:GLU:OE2	2.15	0.46
14:N:-3:DA:C2	14:N:-2:DC:C2	3.03	0.46
16:T:1:DT:C2	16:T:2:DG:C8	3.03	0.46
18:W:455:GLU:HA	19:m:994:ARG:NH2	2.30	0.46
19:m:381:VAL:HG13	19:m:414:LEU:HD22	1.97	0.46
24:v:310:HIS:NE2	24:v:316:ASP:OD2	2.48	0.46
28:g:90:ASP:HB3	28:g:93:LEU:HB2	1.98	0.46
2:B:27:GLU:OE1	2:B:678:TRP:HB3	2.16	0.46
2:B:936:ASP:OD1	2:B:938:SER:OG	2.26	0.46
3:C:17:VAL:HG12	3:C:240:ALA:HB1	1.96	0.46
3:C:74:GLU:O	3:C:246:ARG:NH2	2.39	0.46
7:G:51:GLY:HA2	7:G:54:ILE:HD11	1.98	0.46
18:W:534:PHE:HB3	18:W:554:ILE:HD13	1.97	0.46
24:v:73:ASN:HB3	24:v:76:ARG:HE	1.79	0.46
2:B:906:SER:OG	18:W:781:GLU:OE1	2.23	0.46
21:q:374:ALA:HA	21:q:377:LEU:HD12	1.96	0.46
26:e:73:GLU:OE1	27:f:25:ASN:HB2	2.16	0.46
31:k:386:ALA:C	31:k:387:THR:HG23	2.41	0.46
14:N:2:DG:C2	14:N:3:DC:C2	3.03	0.46
1:A:409:ASP:OD1	1:A:410:ASN:N	2.49	0.46
2:B:497:ARG:NH2	16:T:16:DA:OP2	2.49	0.46
2:B:778:MET:HE2	2:B:1094:ARG:HD3	1.98	0.46
6:F:74:ILE:HG23	6:F:78:GLU:HG3	1.97	0.46
1:A:649:ASN:O	1:A:653:VAL:HG23	2.16	0.46
1:A:684:ILE:HG21	1:A:802:GLU:HG3	1.98	0.46
2:B:74:ARG:NH1	2:B:126:SER:OG	2.40	0.46
2:B:1103:ILE:O	2:B:1122:ARG:NH1	2.49	0.46
24:v:349:VAL:HA	24:v:352:VAL:HB	1.98	0.46
2:B:463:LYS:NZ	2:B:464:LYS:HE2	2.31	0.46
2:B:885:LEU:HD23	2:B:936:ASP:HB2	1.97	0.46
12:L:49:ARG:HG2	22:r:339:VAL:HG11	1.98	0.46
16:T:24:DA:H2"	16:T:25:DG:OP2	2.15	0.46
21:q:155:TYR:O	21:q:160:ARG:N	2.43	0.46
21:q:241:LEU:HD11	21:q:252:LYS:HG2	1.98	0.46
21:q:320:LEU:HD13	22:r:514:LEU:HD11	1.97	0.46
21:q:489:PHE:HE1	21:q:533:VAL:HG21	1.80	0.46
1:A:1448:ILE:HD11	1:A:1453:LEU:HD11	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:-47:DC:H2'	14:N:-46:DT:H71	1.98	0.45
23:u:170:ILE:HD11	24:v:200:PHE:CD1	2.50	0.45
26:a:113:HIS:CG	26:e:126:LEU:HD22	2.51	0.45
27:f:92:ARG:NH2	29:h:98:LEU:HD13	2.32	0.45
31:k:10:PHE:HB2	31:k:78:ASP:OD1	2.16	0.45
1:A:1065:MET:SD	1:A:1439:MET:HB2	2.56	0.45
2:B:318:ASP:OD1	2:B:319:LYS:N	2.48	0.45
7:G:113:ARG:NH1	18:W:563:GLU:OE1	2.49	0.45
16:T:23:DA:H1'	16:T:24:DA:H5''	1.98	0.45
19:m:306:LEU:HD13	19:m:314:ARG:HH21	1.80	0.45
27:b:38:ALA:HB1	27:b:43:VAL:HB	1.98	0.45
2:B:557:GLU:OE2	2:B:584:ARG:NH2	2.49	0.45
4:D:54:SER:OG	4:D:121:CYS:SG	2.61	0.45
18:W:318:VAL:O	18:W:319:LYS:HB3	2.15	0.45
18:W:319:LYS:O	18:W:320:LEU:C	2.59	0.45
19:m:1105:LEU:HD11	19:m:1128:LYS:HE2	1.98	0.45
19:m:1218:ALA:HB1	19:m:1232:LEU:HB3	1.99	0.45
21:q:107:PHE:O	21:q:111:LEU:HG	2.16	0.45
31:k:385:PHE:CE2	31:k:387:THR:OG1	2.69	0.45
2:B:266:PRO:HG3	2:B:352:GLU:O	2.16	0.45
7:G:81:PRO:HG3	7:G:106:LEU:HD22	1.99	0.45
14:N:-35:DG:H2'	14:N:-34:DT:C7	2.46	0.45
16:T:-7:DG:H1'	16:T:-6:DT:C5	2.52	0.45
16:T:63:DA:OP2	26:a:63:ARG:HB2	2.16	0.45
18:W:344:LEU:HD12	18:W:349:GLU:HB2	1.99	0.45
18:W:539:HIS:CE1	18:W:553:LEU:HD21	2.51	0.45
19:m:654:ASP:OD2	19:m:933:HIS:NE2	2.50	0.45
21:q:713:PHE:HB3	21:q:736:ALA:HB2	1.97	0.45
23:u:106:TRP:CD1	23:u:217:LYS:HB2	2.52	0.45
31:k:374:GLY:HA3	31:k:387:THR:HG21	1.96	0.45
1:A:215:ILE:O	1:A:231:ARG:NH2	2.46	0.45
1:A:363:ASP:OD1	1:A:363:ASP:N	2.45	0.45
13:M:37:THR:O	13:M:46:LEU:N	2.29	0.45
18:W:491:LEU:HB3	18:W:494:LEU:HD12	1.98	0.45
19:m:521:TYR:HA	19:m:524:ILE:HD12	1.97	0.45
19:m:1286:PHE:HA	19:m:1308:ILE:HB	1.99	0.45
26:a:83:ARG:HB2	27:b:80:THR:HG23	1.98	0.45
2:B:220:ALA:O	2:B:252:ARG:NH2	2.47	0.45
19:m:561:SER:HA	19:m:696:ILE:HG23	1.97	0.45
21:q:308:LYS:NZ	22:r:507:ASP:OD1	2.41	0.45
22:r:221:ASP:OD1	22:r:251:SER:OG	2.33	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:21:LEU:HD22	11:K:101:LEU:HD11	1.98	0.45
21:q:403:SER:OG	24:v:56:LYS:NZ	2.49	0.45
27:b:40:ARG:O	30:j:867:LEU:HD21	2.17	0.45
26:e:82:LEU:HD23	26:e:82:LEU:HA	1.78	0.45
19:m:1220:ILE:HA	19:m:1232:LEU:HD23	1.98	0.45
21:q:479:TYR:HD1	24:v:30:LEU:HB3	1.82	0.45
24:v:29:LEU:HB2	25:x:147:ARG:HB3	1.98	0.45
5:E:117:PRO:O	5:E:121:LYS:HG2	2.17	0.45
14:N:-14:DA:H61	16:T:14:DT:H3	1.65	0.45
21:q:357:LYS:NZ	21:q:361:ASP:OD1	2.50	0.45
22:r:300:ASP:O	22:r:304:ARG:HG2	2.16	0.45
28:g:88:ARG:NE	28:g:94:ASN:OD1	2.46	0.45
30:j:503:ILE:CD1	30:j:907:PRO:HG3	2.47	0.45
8:H:110:LYS:HE2	8:H:112:LYS:HE3	1.99	0.45
15:P:-7:U:P	19:m:1173:ARG:HH12	2.39	0.45
27:f:75:HIS:HD2	29:h:93:THR:HG21	1.81	0.45
2:B:995:ARG:NH1	2:B:997:GLU:OE2	2.49	0.44
18:W:216:LEU:HD22	19:m:229:LEU:HG	1.98	0.44
30:j:622:SER:CB	30:j:628:MET:HE2	2.47	0.44
1:A:329:ARG:NH1	2:B:1206:GLU:OE2	2.45	0.44
2:B:387:ASP:H	9:I:91:ARG:NH2	2.14	0.44
5:E:46:CYS:HB3	5:E:50:GLY:HA2	1.99	0.44
14:N:-14:DA:C6	14:N:-13:DA:N1	2.85	0.44
19:m:477:GLN:OE1	19:m:477:GLN:N	2.42	0.44
21:q:489:PHE:CE1	21:q:533:VAL:HG21	2.51	0.44
29:h:51:ILE:HG22	29:h:52:SER:O	2.18	0.44
1:A:1061:HIS:O	1:A:1064:GLU:HG2	2.17	0.44
2:B:766:ARG:HA	2:B:766:ARG:HD3	1.79	0.44
2:B:1050:LEU:HD12	24:v:127:PHE:CG	2.52	0.44
15:P:5:G:C2	15:P:6:G:C4	3.05	0.44
15:P:6:G:H1	16:T:21:DC:H42	1.65	0.44
16:T:73:DA:H5''	26:a:85:GLN:HG2	1.99	0.44
31:k:210:LYS:HA	31:k:215:PHE:HD2	1.82	0.44
1:A:343:GLY:O	2:B:1129:ARG:NH1	2.45	0.44
1:A:452:HIS:CE1	1:A:454:MET:HB2	2.52	0.44
1:A:975:LEU:HD13	1:A:1039:LEU:HA	1.99	0.44
2:B:221:ALA:O	2:B:223:SER:N	2.46	0.44
3:C:258:VAL:HG21	11:K:42:LEU:HD21	2.00	0.44
14:N:-5:DG:H2''	14:N:-4:DG:O4'	2.17	0.44
16:T:-2:DC:H2'	16:T:-1:DG:C8	2.52	0.44
19:m:735:LEU:HB3	19:m:937:LEU:HD21	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:m:1279:ARG:NH2	19:m:1344:ALA:O	2.50	0.44
20:n:200:ARG:HG2	20:n:202:ASN:OD1	2.18	0.44
21:q:641:ALA:HB2	21:q:658:GLN:HB2	1.99	0.44
1:A:564:PRO:HG2	1:A:567:LEU:HD23	1.98	0.44
1:A:880:GLU:O	1:A:957:PRO:HA	2.18	0.44
5:E:104:PHE:HZ	21:q:925:TRP:HZ3	1.65	0.44
17:V:78:GLN:OE1	17:V:79:PRO:HD2	2.16	0.44
19:m:336:GLU:OE1	19:m:458:ARG:NH2	2.50	0.44
19:m:536:ILE:HG12	19:m:700:TRP:CZ3	2.53	0.44
19:m:640:TYR:HB3	19:m:1256:ASP:HB3	2.00	0.44
19:m:782:VAL:HG11	19:m:905:ILE:HG13	1.99	0.44
19:m:999:LEU:HD23	19:m:1025:ILE:HD11	1.99	0.44
30:j:738:PRO:CG	30:j:745:LYS:HE2	2.48	0.44
3:C:15:ASP:OD1	3:C:15:ASP:N	2.47	0.44
21:q:178:ASN:HA	24:v:91:PHE:CE2	2.52	0.44
21:q:561:ILE:HD12	21:q:579:LEU:HD22	1.99	0.44
23:u:116:ILE:HD13	23:u:150:VAL:HB	2.00	0.44
1:A:889:GLY:O	1:A:941:ARG:NH2	2.51	0.44
3:C:79:MET:HE1	3:C:96:VAL:HG23	2.00	0.44
13:M:65:GLN:N	13:M:68:ASP:OD2	2.44	0.44
14:N:-7:DG:C2	14:N:-6:DG:C2	3.05	0.44
19:m:305:ASP:OD1	19:m:1014:THR:OG1	2.34	0.44
19:m:968:PRO:HA	19:m:971:ALA:HB3	1.99	0.44
25:x:222:MET:HE3	25:x:222:MET:HB3	1.84	0.44
25:x:314:PHE:HD2	25:x:335:ILE:HD11	1.82	0.44
30:j:865:PHE:O	30:j:866:GLY:C	2.61	0.44
1:A:701:ASN:CG	9:I:96:ASN:HD21	2.26	0.44
2:B:721:ASP:OD2	2:B:724:LYS:N	2.41	0.44
2:B:776:GLN:NE2	15:P:9:G:OP1	2.50	0.44
5:E:99:ILE:HG13	5:E:131:ILE:HD11	1.99	0.44
17:V:46:VAL:O	17:V:50:THR:N	2.44	0.44
21:q:526:ASN:O	21:q:530:VAL:HG23	2.18	0.44
21:q:868:GLN:O	21:q:872:GLU:HG2	2.17	0.44
1:A:636:ARG:HH12	1:A:878:GLN:CD	2.25	0.44
15:P:-4:A:C2	18:W:748:ARG:HG2	2.52	0.44
15:P:-2:U:H2'	15:P:-2:U:O2	2.17	0.44
16:T:46:DA:OP1	30:j:744:LYS:HE2	2.13	0.44
18:W:250:ARG:NH2	18:W:284:ASP:OD2	2.50	0.44
1:A:1390:HIS:O	1:A:1394:ARG:HD3	2.17	0.43
8:H:25:ARG:HD3	8:H:41:ASP:OD1	2.18	0.43
15:P:-6:G:H2'	15:P:-5:U:O4'	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:451:GLN:HE21	18:W:459:ILE:H	1.65	0.43
18:W:518:ILE:HD13	20:n:185:ILE:HD13	2.00	0.43
19:m:603:ILE:HD13	19:m:708:TRP:HZ3	1.83	0.43
19:m:1039:MET:SD	19:m:1039:MET:N	2.90	0.43
21:q:435:GLN:HG3	21:q:441:ILE:HD11	1.98	0.43
26:e:60:LEU:HD22	26:e:93:GLN:HG2	2.00	0.43
27:f:64:ASN:HA	27:f:67:ARG:NH1	2.32	0.43
30:j:554:GLN:HA	30:j:638:LEU:HD21	1.99	0.43
7:G:118:ASN:OD1	7:G:118:ASN:N	2.51	0.43
16:T:21:DC:C2	16:T:22:DC:C5	3.06	0.43
16:T:33:DC:OP1	18:W:433:GLN:NE2	2.51	0.43
17:V:67:TRP:NE1	18:W:217:LEU:O	2.51	0.43
21:q:217:ARG:HA	21:q:220:ILE:HD12	2.00	0.43
21:q:261:ASP:HB2	24:v:58:ASN:ND2	2.34	0.43
21:q:559:ARG:NH2	24:v:24:PRO:O	2.51	0.43
1:A:779:GLY:HA3	2:B:509:ASN:HB2	1.99	0.43
1:A:958:LEU:HD13	1:A:1023:LEU:HD22	1.99	0.43
1:A:1098:LEU:HD23	1:A:1098:LEU:HA	1.89	0.43
2:B:640:ASP:OD1	2:B:640:ASP:N	2.50	0.43
11:K:56:VAL:HG22	11:K:77:THR:HG22	2.00	0.43
18:W:763:TYR:HB3	18:W:766:LYS:HD3	2.00	0.43
19:m:590:LYS:HD2	19:m:706:ASP:HB2	1.99	0.43
20:n:167:MET:HE3	20:n:219:TRP:CD2	2.53	0.43
21:q:40:ASP:CG	21:q:42:ASN:HD22	2.25	0.43
22:r:206:PHE:H	22:r:229:LEU:HD21	1.83	0.43
23:u:117:ASN:HB3	23:u:151:ARG:HG2	2.00	0.43
14:N:-49:DG:C2	16:T:50:DA:H2	2.35	0.43
16:T:6:DC:H2''	16:T:7:DC:C6	2.52	0.43
19:m:955:ASN:HD21	19:m:978:CYS:HB3	1.83	0.43
21:q:284:LEU:HD11	21:q:297:LEU:HD22	2.01	0.43
22:r:277:PRO:HB2	22:r:305:GLU:HB3	2.00	0.43
22:r:345:MET:O	22:r:348:SER:OG	2.31	0.43
14:N:-68:DT:OP1	26:a:72:ARG:NH2	2.51	0.43
14:N:0:DG:H1'	14:N:1:DC:H5'	1.99	0.43
19:m:306:LEU:O	19:m:311:GLN:NE2	2.51	0.43
19:m:538:ASN:HB3	19:m:541:GLN:HB2	2.00	0.43
19:m:685:TYR:O	19:m:689:LYS:N	2.41	0.43
19:m:1309:ARG:NH2	19:m:1319:THR:HG21	2.34	0.43
2:B:792:MET:HE2	2:B:857:ARG:NH2	2.28	0.43
2:B:1156:ASP:O	2:B:1197:PRO:HA	2.19	0.43
5:E:11:LEU:HD21	5:E:57:MET:HE1	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:n:157:ASP:HA	20:n:210:ASN:HD21	1.82	0.43
21:q:122:ARG:HB2	21:q:126:PHE:CE2	2.54	0.43
24:v:311:LYS:HE2	24:v:311:LYS:HB2	1.90	0.43
1:A:504:GLN:OE1	6:F:90:ARG:NH1	2.38	0.43
2:B:1133:MET:HE2	16:T:17:DA:H4'	2.01	0.43
4:D:88:GLU:HA	4:D:91:LYS:HE3	2.00	0.43
18:W:490:GLU:CD	20:n:229:PRO:HA	2.43	0.43
22:r:245:VAL:HG23	22:r:298:GLU:HG2	2.01	0.43
24:v:31:LYS:HA	25:x:147:ARG:HH12	1.82	0.43
26:e:106:ASP:OD2	26:e:131:ARG:NH2	2.42	0.43
28:g:72:ASP:OD1	30:j:486:GLU:OE2	2.36	0.43
1:A:38:PRO:HA	1:A:271:LEU:HD23	2.00	0.43
1:A:1389:ARG:O	1:A:1393:ASN:HB2	2.18	0.43
6:F:103:MET:HE1	7:G:65:SER:O	2.19	0.43
7:G:115:ILE:HG23	7:G:163:ILE:HD11	2.01	0.43
10:J:63:ASN:OD1	10:J:64:PRO:HD2	2.18	0.43
14:N:2:DG:N3	14:N:3:DC:C2	2.87	0.43
18:W:322:ARG:NE	18:W:343:VAL:H	2.17	0.43
18:W:468:LEU:HD11	19:m:283:VAL:HG13	2.01	0.43
21:q:53:LEU:O	21:q:57:GLU:HG2	2.19	0.43
1:A:815:PHE:O	1:A:819:MET:HG3	2.19	0.43
2:B:250:TYR:HE2	2:B:262:LYS:HB2	1.82	0.43
14:N:-57:DT:C2	16:T:58:DG:N2	2.86	0.43
19:m:1005:LEU:HA	19:m:1010:LEU:HD12	2.01	0.43
21:q:511:VAL:HG11	21:q:519:LEU:HD12	2.01	0.43
24:v:41:LYS:HB3	24:v:45:LYS:HE3	2.01	0.43
28:g:31:HIS:CE1	28:g:35:ARG:HH12	2.37	0.43
29:h:108:VAL:O	29:h:112:THR:HG23	2.19	0.43
2:B:257:THR:OG1	2:B:258:GLY:N	2.50	0.43
2:B:892:LYS:NZ	2:B:909:ASP:OD2	2.45	0.43
9:I:40:ASP:OD1	9:I:40:ASP:N	2.44	0.43
19:m:1002:ARG:HH11	19:m:1052:TYR:HH	1.65	0.43
21:q:841:TYR:HB2	21:q:846:LEU:HD21	2.01	0.43
23:u:83:GLY:HA2	24:v:358:ALA:HB3	2.01	0.43
1:A:473:LEU:HD21	2:B:835:GLN:HB2	1.99	0.42
2:B:85:SER:OG	2:B:114:PRO:HD2	2.19	0.42
2:B:330:GLY:HA3	2:B:344:TYR:HE2	1.84	0.42
2:B:592:THR:HG23	23:u:226:PHE:CZ	2.54	0.42
21:q:611:GLU:HG2	21:q:615:HIS:CD2	2.54	0.42
1:A:421:ARG:HB3	1:A:424:ASP:HB2	2.01	0.42
2:B:279:ARG:NH2	2:B:286:ASP:OD1	2.51	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:763:GLN:HG2	2:B:765:PRO:HD2	2.01	0.42
2:B:764:SER:OG	2:B:765:PRO:HD3	2.19	0.42
18:W:461:LEU:HD13	19:m:278:THR:HA	2.01	0.42
19:m:917:GLU:OE2	19:m:969:TYR:OH	2.24	0.42
20:n:208:LEU:HD22	20:n:250:HIS:CD2	2.54	0.42
24:v:307:PHE:HE1	24:v:335:GLY:HA3	1.83	0.42
26:e:135:ALA:HB3	30:j:892:GLU:OE2	2.19	0.42
29:h:76:ARG:HG2	29:h:80:TYR:CE2	2.54	0.42
1:A:598:LEU:HD23	1:A:598:LEU:HA	1.88	0.42
1:A:1041:ARG:O	1:A:1044:PHE:N	2.50	0.42
2:B:733:SER:HB3	2:B:736:HIS:CE1	2.54	0.42
5:E:42:ARG:HG3	5:E:46:CYS:SG	2.60	0.42
17:V:12:CYS:HA	17:V:50:THR:HA	2.01	0.42
19:m:1399:SER:HA	19:m:1407:HIS:CE1	2.54	0.42
21:q:830:LEU:HD22	21:q:846:LEU:HB3	2.01	0.42
25:x:226:LYS:HB2	25:x:248:LEU:HD21	2.00	0.42
1:A:203:LEU:HD23	1:A:203:LEU:HA	1.90	0.42
9:I:100:PHE:HB3	9:I:109:THR:HG23	1.99	0.42
14:N:2:DG:C2	14:N:3:DC:O2	2.72	0.42
16:T:25:DG:C5'	16:T:25:DG:H8	2.31	0.42
19:m:750:ALA:HB2	19:m:1139:ARG:HB2	2.01	0.42
19:m:773:GLY:N	19:m:777:ASP:OD2	2.52	0.42
21:q:308:LYS:NZ	22:r:504:SER:O	2.38	0.42
22:r:275:ALA:HB2	22:r:281:GLU:HA	2.01	0.42
26:a:87:ALA:HB1	27:b:100:PHE:CD1	2.54	0.42
1:A:152:ALA:HA	1:A:153:PRO:HD3	1.90	0.42
1:A:948:VAL:O	5:E:200:ARG:NH1	2.48	0.42
16:T:34:DA:OP1	18:W:431:ARG:NH2	2.52	0.42
18:W:543:ILE:HD11	18:W:581:ILE:HG13	2.01	0.42
22:r:370:GLU:HG3	23:u:251:VAL:HA	2.01	0.42
24:v:202:PRO:HG2	24:v:382:TYR:OH	2.19	0.42
28:g:93:LEU:HD23	28:g:93:LEU:HA	1.89	0.42
31:k:257:ILE:HD11	31:k:286:LEU:HD11	2.01	0.42
1:A:1221:VAL:HG21	1:A:1274:ILE:HD12	2.00	0.42
9:I:29:CYS:HB3	9:I:32:CYS:SG	2.59	0.42
20:n:195:LYS:HE3	20:n:199:LEU:HD11	2.01	0.42
21:q:189:LEU:HB3	21:q:194:LYS:HB2	2.01	0.42
26:a:109:LEU:HD23	26:a:109:LEU:HA	1.90	0.42
1:A:53:LEU:HD23	1:A:53:LEU:HA	1.91	0.42
1:A:1201:ARG:HA	1:A:1238:LEU:HD12	2.01	0.42
2:B:293:ILE:HD13	2:B:375:VAL:HG11	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:8:ASP:OD1	8:H:9:ILE:N	2.48	0.42
16:T:6:DC:C2	16:T:7:DC:C4	3.07	0.42
18:W:539:HIS:HB2	18:W:584:THR:HA	2.02	0.42
22:r:316:LEU:HD23	22:r:316:LEU:HA	1.83	0.42
29:h:42:LEU:O	29:h:46:HIS:N	2.34	0.42
30:j:824:VAL:HG23	30:j:888:THR:CG2	2.49	0.42
2:B:606:VAL:HG22	2:B:621:THR:HG22	2.02	0.42
19:m:743:PHE:O	19:m:747:ILE:HG12	2.20	0.42
19:m:1000:VAL:HB	19:m:1004:HIS:ND1	2.35	0.42
20:n:161:GLN:O	20:n:165:LEU:HG	2.19	0.42
25:x:345:GLN:O	25:x:349:GLN:HG3	2.20	0.42
1:A:914:ILE:HG13	1:A:917:ALA:HB2	2.01	0.42
2:B:283:VAL:HG13	2:B:283:VAL:O	2.19	0.42
15:P:-4:A:H61	18:W:752:LEU:HD12	1.85	0.42
19:m:708:TRP:CZ2	19:m:712:LEU:HD21	2.55	0.42
21:q:29:PRO:HA	21:q:36:VAL:HG12	2.02	0.42
22:r:208:ARG:HA	22:r:211:MET:HE3	2.02	0.42
26:e:98:ALA:HA	31:k:410:SER:HB2	2.02	0.42
27:f:38:ALA:HB1	27:f:43:VAL:HB	2.02	0.42
27:f:46:ILE:HG22	27:f:47:SER:O	2.20	0.42
1:A:691:VAL:HG11	1:A:795:PRO:HG3	2.02	0.42
2:B:262:LYS:HB3	2:B:271:ASP:HB3	2.01	0.42
2:B:279:ARG:NH1	2:B:316:ILE:O	2.52	0.42
2:B:837:ASP:CG	2:B:1020:ARG:HH22	2.28	0.42
9:I:29:CYS:SG	9:I:30:ARG:N	2.92	0.42
19:m:674:LEU:HD12	19:m:675:PRO:HD2	2.02	0.42
21:q:638:ALA:HB1	21:q:642:ARG:HH22	1.84	0.42
22:r:408:ASP:OD2	24:v:133:TYR:HB2	2.20	0.42
28:g:16:THR:O	28:g:19:SER:OG	2.35	0.42
28:g:31:HIS:CD2	28:g:35:ARG:HH12	2.37	0.42
2:B:862:GLN:HB3	2:B:963:PHE:HD1	1.85	0.41
3:C:36:MET:HE3	3:C:176:ILE:HD13	2.01	0.41
5:E:176:ARG:HD3	5:E:214:LEU:HD11	2.02	0.41
19:m:397:ASN:HB3	19:m:401:ASN:HA	2.02	0.41
20:n:177:ASN:HD21	20:n:186:PHE:HE2	1.67	0.41
21:q:562:TYR:CZ	21:q:566:LEU:HD11	2.55	0.41
26:a:65:LEU:HG	26:a:69:ARG:NH1	2.34	0.41
31:k:269:PRO:HB3	31:k:302:ARG:HH21	1.85	0.41
1:A:390:THR:O	1:A:394:ARG:HG2	2.20	0.41
7:G:165:GLU:H	7:G:168:LEU:HD12	1.85	0.41
8:H:6:PHE:HB3	8:H:59:LEU:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:K:25:SER:O	25:x:307:GLN:NE2	2.53	0.41
17:V:13:MET:HE2	17:V:51:SER:HB2	2.01	0.41
18:W:422:TYR:HB3	18:W:427:TYR:CE1	2.55	0.41
19:m:423:ASP:O	19:m:427:ILE:HG23	2.21	0.41
19:m:597:LEU:HD13	19:m:708:TRP:HE3	1.84	0.41
19:m:955:ASN:ND2	19:m:978:CYS:HB3	2.35	0.41
19:m:1246:LEU:HB3	19:m:1248:VAL:HG23	2.01	0.41
26:e:109:LEU:HD22	31:k:430:ASN:OD1	2.20	0.41
1:A:1210:THR:HG22	1:A:1212:ASN:H	1.86	0.41
2:B:575:VAL:O	2:B:578:VAL:HG22	2.20	0.41
2:B:756:ILE:HG12	2:B:770:GLN:HG2	2.02	0.41
2:B:793:ALA:HB3	2:B:856:PHE:HB2	2.02	0.41
16:T:-6:DT:H2"	16:T:-5:DA:C8	2.55	0.41
19:m:313:TYR:HB3	19:m:422:LEU:HD11	2.03	0.41
19:m:960:ASP:HB2	19:m:1024:TYR:CZ	2.54	0.41
19:m:1255:TRP:HD1	19:m:1257:ILE:HG12	1.85	0.41
19:m:1261:ASN:OD1	19:m:1264:ARG:NH2	2.39	0.41
21:q:66:SER:O	21:q:70:VAL:HG23	2.20	0.41
21:q:189:LEU:HD13	21:q:197:GLN:HB2	2.02	0.41
22:r:211:MET:HB3	22:r:286:LEU:HD23	2.02	0.41
30:j:867:LEU:HA	30:j:867:LEU:HD22	1.69	0.41
1:A:231:ARG:HB3	1:A:234:TRP:CD2	2.56	0.41
1:A:1218:ILE:HG12	1:A:1270:MET:HE1	2.02	0.41
2:B:479:TYR:CE2	2:B:778:MET:HG2	2.55	0.41
2:B:1174:ASN:OD1	2:B:1177:LYS:HB2	2.20	0.41
3:C:248:ILE:HG21	11:K:102:ASP:HB2	2.01	0.41
14:N:4:DG:N2	16:T:-3:DG:C4	2.88	0.41
15:P:-6:G:C5	15:P:-5:U:C4	3.08	0.41
18:W:540:VAL:HG11	18:W:554:ILE:HD11	2.01	0.41
19:m:656:TYR:CE2	19:m:660:ILE:HD11	2.54	0.41
19:m:709:LYS:HA	19:m:712:LEU:HD12	2.02	0.41
19:m:821:ASP:HA	19:m:850:ILE:HD13	2.01	0.41
26:e:109:LEU:CD2	31:k:430:ASN:OD1	2.68	0.41
31:k:258:GLN:OE1	31:k:260:LYS:HE2	2.20	0.41
1:A:389:LEU:HD23	1:A:389:LEU:HA	1.91	0.41
18:W:480:PRO:HA	18:W:498:VAL:HG12	2.02	0.41
19:m:314:ARG:HD3	19:m:320:TYR:CE1	2.56	0.41
20:n:171:ALA:HB2	20:n:219:TRP:CD1	2.56	0.41
26:a:130:ILE:HA	31:k:413:ARG:HH22	1.84	0.41
27:f:51:TYR:O	27:f:55:ARG:HG3	2.20	0.41
1:A:1314:ILE:HB	1:A:1337:GLU:OE1	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1153:GLU:OE1	2:B:1153:GLU:N	2.53	0.41
9:I:62:ILE:HD12	9:I:62:ILE:HA	1.93	0.41
11:K:55:ASP:OD2	11:K:89:ARG:NH2	2.54	0.41
14:N:-69:DG:C2	16:T:70:DG:C2	3.08	0.41
14:N:4:DG:C8	14:N:5:DT:H72	2.56	0.41
16:T:33:DC:H2''	16:T:34:DA:O5'	2.21	0.41
19:m:1141:ASP:OD1	19:m:1141:ASP:N	2.52	0.41
23:u:121:PHE:CE2	23:u:123:PRO:HG3	2.56	0.41
1:A:266:LYS:HD2	1:A:266:LYS:HA	1.88	0.41
1:A:985:ILE:N	1:A:986:PRO:HD2	2.36	0.41
1:A:1150:SER:OG	1:A:1198:GLU:O	2.32	0.41
2:B:691:ASP:OD1	2:B:691:ASP:N	2.41	0.41
18:W:598:LEU:HD12	18:W:599:HIS:H	1.86	0.41
19:m:283:VAL:HG12	19:m:284:PHE:CD1	2.56	0.41
19:m:586:TYR:CE2	19:m:703:LEU:HD12	2.56	0.41
19:m:1136:ARG:HD2	19:m:1137:GLU:O	2.21	0.41
21:q:410:GLY:HA2	21:q:423:ALA:HA	2.03	0.41
21:q:824:ASN:CG	21:q:858:ARG:HH21	2.29	0.41
26:a:73:GLU:OE1	27:b:25:ASN:HB2	2.20	0.41
30:j:593:PRO:HG2	31:k:177:TYR:CE2	2.56	0.41
1:A:1343:GLY:HA2	5:E:182:PRO:HD2	2.01	0.41
2:B:807:GLN:OE1	24:v:129:ARG:NH1	2.51	0.41
3:C:135:ARG:HE	3:C:136:ASP:CG	2.28	0.41
4:D:106:LEU:HD23	4:D:106:LEU:HA	1.89	0.41
11:K:47:ARG:HD3	11:K:61:TYR:HD1	1.86	0.41
13:M:39:ASP:HB3	13:M:44:ILE:HG13	2.03	0.41
15:P:9:G:O2'	15:P:10:U:H5'	2.21	0.41
16:T:8:DC:H2''	16:T:9:DG:H8	1.86	0.41
16:T:50:DA:H5''	31:k:235:GLY:HA2	2.01	0.41
17:V:42:ASP:N	17:V:42:ASP:OD1	2.53	0.41
21:q:278:ARG:NH2	22:r:507:ASP:O	2.53	0.41
21:q:350:VAL:HA	21:q:380:ARG:NH1	2.36	0.41
23:u:168:SER:HB2	24:v:200:PHE:HB3	2.02	0.41
30:j:604:LEU:HD23	30:j:604:LEU:HA	1.87	0.41
31:k:10:PHE:CD2	31:k:61:ARG:NH1	2.89	0.41
1:A:636:ARG:HG3	1:A:880:GLU:OE2	2.21	0.41
1:A:664:SER:OG	1:A:665:ILE:N	2.54	0.41
1:A:883:THR:HA	1:A:954:HIS:O	2.21	0.41
1:A:908:SER:OG	1:A:909:ILE:N	2.54	0.41
2:B:439:LEU:HD11	23:u:264:LEU:HB3	2.03	0.41
2:B:557:GLU:HA	2:B:558:PRO:HD3	1.90	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:135:ARG:NE	3:C:136:ASP:OD2	2.50	0.41
3:C:259:LEU:HD13	11:K:91:CYS:HB2	2.03	0.41
5:E:3:ASP:HA	5:E:6:ARG:HG2	2.01	0.41
7:G:4:LEU:HD23	7:G:4:LEU:HA	1.86	0.41
11:K:11:ILE:HD13	11:K:11:ILE:HA	1.89	0.41
11:K:55:ASP:OD1	11:K:55:ASP:N	2.48	0.41
12:L:60:LYS:HB3	12:L:60:LYS:HE3	1.87	0.41
14:N:-12:DA:H2'	14:N:-11:DC:C6	2.56	0.41
2:B:425:MET:O	2:B:429:ILE:HG13	2.21	0.41
14:N:-61:DT:H2''	14:N:-60:DT:C5	2.56	0.41
14:N:-52:DC:H4'	30:j:601:LYS:HE2	2.03	0.41
14:N:-50:DT:O4	16:T:49:DC:N4	2.54	0.41
21:q:609:ASP:O	21:q:613:GLN:HG3	2.20	0.41
28:g:21:ALA:HB2	29:h:118:TYR:HB2	2.02	0.41
31:k:223:VAL:HG23	31:k:308:VAL:HG11	2.01	0.41
3:C:146:LYS:NZ	10:J:57:GLU:OE2	2.55	0.40
4:D:53:LEU:HD13	4:D:147:SER:HB3	2.02	0.40
6:F:99:LEU:HG	6:F:103:MET:HE2	2.02	0.40
7:G:126:SER:HA	7:G:127:PRO:HA	1.94	0.40
21:q:341:ARG:NH2	24:v:50:LEU:HB2	2.36	0.40
25:x:153:ASN:OD1	25:x:153:ASN:N	2.54	0.40
1:A:473:LEU:CD2	2:B:835:GLN:HB2	2.50	0.40
1:A:493:PRO:HG3	1:A:502:LEU:HD12	2.03	0.40
1:A:498:THR:CG2	2:B:1146:PHE:HD1	2.34	0.40
1:A:1295:PRO:HD3	1:A:1301:TYR:CE1	2.56	0.40
2:B:71:ILE:HG12	2:B:127:ILE:HG22	2.02	0.40
8:H:76:LYS:HE3	8:H:76:LYS:HB3	1.93	0.40
12:L:29:VAL:HG23	12:L:31:TYR:CE2	2.56	0.40
14:N:-44:DG:C8	14:N:-43:DT:H71	2.56	0.40
19:m:474:TYR:HB3	19:m:477:GLN:HB2	2.04	0.40
19:m:827:GLY:HA3	19:m:832:THR:OG1	2.21	0.40
19:m:1303:VAL:HA	19:m:1323:LYS:HD3	2.03	0.40
21:q:619:LEU:HA	21:q:623:ASP:O	2.22	0.40
21:q:756:TRP:HB3	21:q:772:ALA:HB2	2.03	0.40
26:e:102:GLY:HA2	26:e:105:GLU:OE1	2.22	0.40
30:j:614:PHE:CE2	31:k:112:TRP:HB3	2.56	0.40
2:B:33:GLN:HG2	2:B:34:GLN:N	2.36	0.40
2:B:86:ARG:HD3	2:B:86:ARG:HA	1.89	0.40
18:W:492:ASN:OD1	18:W:493:HIS:N	2.54	0.40
19:m:588:ALA:HA	19:m:591:GLN:HG2	2.04	0.40
19:m:1290:LYS:H	19:m:1293:GLU:HB2	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:n:241:ILE:HG23	20:n:246:ILE:HD12	2.04	0.40
21:q:341:ARG:NH2	24:v:47:SER:O	2.54	0.40
21:q:687:PHE:O	21:q:691:GLU:N	2.54	0.40
23:u:142:ASP:HA	23:u:145:ILE:HG22	2.04	0.40
24:v:136:ASP:OD1	24:v:136:ASP:N	2.54	0.40
27:b:97:LEU:HD21	27:b:100:PHE:CD2	2.57	0.40
2:B:285:PRO:HB2	9:I:11:ASN:HD22	1.86	0.40
2:B:978:ASP:OD2	2:B:1094:ARG:NH2	2.52	0.40
19:m:606:THR:HG21	19:m:684:PHE:HZ	1.87	0.40
19:m:936:LEU:HD23	19:m:936:LEU:HA	1.95	0.40
22:r:432:LEU:HD11	22:r:433:ARG:NH1	2.36	0.40
25:x:301:ASP:OD1	25:x:303:GLN:NE2	2.54	0.40
1:A:471:LEU:HD23	1:A:475:VAL:HG23	2.04	0.40
7:G:95:SER:OG	7:G:98:GLY:O	2.22	0.40
8:H:38:LEU:HD13	8:H:124:LEU:HD13	2.03	0.40
12:L:33:CYS:SG	12:L:34:GLY:N	2.95	0.40
14:N:-68:DT:C5	14:N:-67:DT:C7	3.00	0.40
14:N:-1:DA:C2	14:N:0:DG:C5	3.09	0.40
16:T:7:DC:H1'	16:T:8:DC:H5'	2.04	0.40
17:V:29:CYS:HB2	17:V:38:LEU:HD12	2.03	0.40
18:W:614:ARG:NH2	18:W:616:GLN:HE21	2.19	0.40
19:m:884:TYR:CE1	19:m:890:SER:HB3	2.56	0.40
19:m:1175:VAL:HA	19:m:1180:MET:HG3	2.02	0.40
21:q:224:PHE:CD1	21:q:229:ASN:HB3	2.57	0.40
22:r:501:ARG:HG2	22:r:505:LYS:HE3	2.03	0.40
26:a:120:MET:HE2	26:a:122:LYS:HE2	2.03	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	A	1392/1743 (80%)	1354 (97%)	37 (3%)	1 (0%)	48	80
2	B	1154/1227 (94%)	1117 (97%)	37 (3%)	0	100	100
3	C	261/304 (86%)	259 (99%)	2 (1%)	0	100	100
4	D	170/186 (91%)	166 (98%)	4 (2%)	0	100	100
5	E	211/214 (99%)	205 (97%)	6 (3%)	0	100	100
6	F	82/155 (53%)	80 (98%)	2 (2%)	0	100	100
7	G	169/171 (99%)	166 (98%)	3 (2%)	0	100	100
8	H	129/145 (89%)	125 (97%)	4 (3%)	0	100	100
9	I	109/115 (95%)	106 (97%)	3 (3%)	0	100	100
10	J	65/72 (90%)	65 (100%)	0	0	100	100
11	K	111/118 (94%)	110 (99%)	1 (1%)	0	100	100
12	L	43/72 (60%)	41 (95%)	2 (5%)	0	100	100
13	M	62/113 (55%)	62 (100%)	0	0	100	100
17	V	104/108 (96%)	100 (96%)	4 (4%)	0	100	100
18	W	527/911 (58%)	504 (96%)	22 (4%)	1 (0%)	43	74
19	m	1179/1503 (78%)	1158 (98%)	21 (2%)	0	100	100
20	n	137/417 (33%)	136 (99%)	1 (1%)	0	100	100
21	q	928/1084 (86%)	922 (99%)	6 (1%)	0	100	100
22	r	260/544 (48%)	254 (98%)	6 (2%)	0	100	100
23	u	206/459 (45%)	204 (99%)	2 (1%)	0	100	100
24	v	341/396 (86%)	327 (96%)	14 (4%)	0	100	100
25	x	201/395 (51%)	200 (100%)	1 (0%)	0	100	100
26	a	73/139 (52%)	67 (92%)	6 (8%)	0	100	100
26	e	75/139 (54%)	73 (97%)	2 (3%)	0	100	100
27	b	81/106 (76%)	77 (95%)	4 (5%)	0	100	100
27	f	76/106 (72%)	73 (96%)	3 (4%)	0	100	100
28	g	90/133 (68%)	87 (97%)	3 (3%)	0	100	100
29	h	91/129 (70%)	89 (98%)	2 (2%)	0	100	100
30	j	467/1008 (46%)	446 (96%)	19 (4%)	2 (0%)	30	64
31	k	430/531 (81%)	409 (95%)	20 (5%)	1 (0%)	43	74
All	All	9224/12743 (72%)	8982 (97%)	237 (3%)	5 (0%)	49	80

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	960	VAL
30	j	544	ASN
18	W	319	LYS
31	k	410	SER
30	j	866	GLY

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	A	1219/1528 (80%)	1219 (100%)	0	100	100
2	B	1018/1077 (94%)	1018 (100%)	0	100	100
3	C	236/264 (89%)	236 (100%)	0	100	100
4	D	149/160 (93%)	149 (100%)	0	100	100
5	E	196/197 (100%)	196 (100%)	0	100	100
6	F	75/137 (55%)	75 (100%)	0	100	100
7	G	148/148 (100%)	148 (100%)	0	100	100
8	H	120/130 (92%)	120 (100%)	0	100	100
9	I	106/109 (97%)	106 (100%)	0	100	100
10	J	61/66 (92%)	61 (100%)	0	100	100
11	K	104/109 (95%)	104 (100%)	0	100	100
12	L	38/56 (68%)	38 (100%)	0	100	100
13	M	61/99 (62%)	61 (100%)	0	100	100
17	V	90/92 (98%)	90 (100%)	0	100	100
18	W	480/796 (60%)	477 (99%)	3 (1%)	78	80
19	m	1087/1354 (80%)	1087 (100%)	0	100	100
20	n	125/361 (35%)	125 (100%)	0	100	100
21	q	824/962 (86%)	824 (100%)	0	100	100
22	r	239/485 (49%)	239 (100%)	0	100	100
23	u	192/406 (47%)	192 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
24	v	325/369 (88%)	325 (100%)	0	100	100
25	x	190/354 (54%)	190 (100%)	0	100	100
26	a	63/112 (56%)	63 (100%)	0	100	100
26	e	64/112 (57%)	64 (100%)	0	100	100
27	b	68/81 (84%)	68 (100%)	0	100	100
27	f	63/81 (78%)	63 (100%)	0	100	100
28	g	72/102 (71%)	71 (99%)	1 (1%)	59	71
29	h	79/107 (74%)	79 (100%)	0	100	100
30	j	412/910 (45%)	408 (99%)	4 (1%)	68	75
31	k	396/474 (84%)	394 (100%)	2 (0%)	81	82
All	All	8300/11238 (74%)	8290 (100%)	10 (0%)	87	89

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
18	W	318	VAL
18	W	319	LYS
18	W	459	ILE
28	g	75	LYS
30	j	740	MET
30	j	865	PHE
30	j	867	LEU
30	j	888	THR
31	k	388	LYS
31	k	413	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (79) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	260	GLN
1	A	265	HIS
1	A	291	ASN
1	A	295	GLN
1	A	364	GLN
1	A	491	HIS
1	A	737	ASN
1	A	742	ASN

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Mol	Chain	Res	Type
1	A	769	GLN
1	A	1021	GLN
2	B	215	GLN
2	B	317	GLN
2	B	350	GLN
2	B	388	GLN
2	B	438	ASN
2	B	458	ASN
2	B	736	HIS
2	B	1074	ASN
3	C	11	ASN
3	C	13	GLN
3	C	25	ASN
3	C	150	HIS
4	D	130	ASN
4	D	170	ASN
5	E	31	GLN
5	E	36	GLN
7	G	24	GLN
9	I	11	ASN
10	J	52	HIS
13	M	32	ASN
18	W	242	GLN
18	W	283	ASN
18	W	539	HIS
18	W	644	ASN
19	m	299	ASN
19	m	402	ASN
19	m	553	HIS
19	m	554	GLN
19	m	896	ASN
19	m	1116	HIS
19	m	1288	ASN
19	m	1407	HIS
20	n	156	GLN
20	n	177	ASN
20	n	232	GLN
21	q	105	HIS
21	q	132	ASN
21	q	147	ASN
21	q	187	GLN
21	q	353	GLN

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Mol	Chain	Res	Type
21	q	397	ASN
21	q	398	GLN
21	q	438	ASN
21	q	615	HIS
21	q	658	GLN
21	q	715	ASN
21	q	781	GLN
22	r	336	ASN
22	r	416	ASN
22	r	493	ASN
23	u	138	GLN
24	v	64	ASN
24	v	229	ASN
24	v	283	ASN
24	v	381	GLN
25	x	251	GLN
27	f	75	HIS
28	g	38	ASN
30	j	523	HIS
30	j	578	ASN
30	j	721	GLN
30	j	841	GLN
31	k	93	GLN
31	k	127	ASN
31	k	148	HIS
31	k	163	HIS
31	k	362	GLN
31	k	375	GLN
31	k	420	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
15	P	19/19 (100%)	10 (52%)	1 (5%)

All (10) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
15	P	-6	G
15	P	-5	U
15	P	-4	A

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Mol	Chain	Res	Type
15	P	-3	A
15	P	-2	U
15	P	0	C
15	P	1	C
15	P	8	G
15	P	9	G
15	P	11	U

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
15	P	-7	U

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 11 ligands modelled in this entry, 11 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

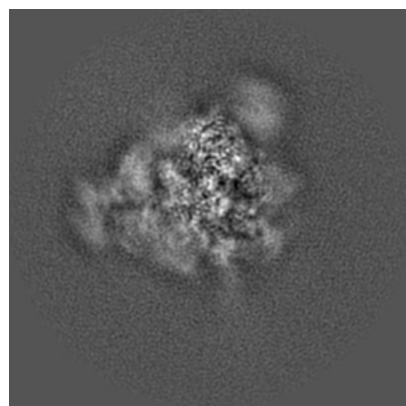
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-33450. These allow visual inspection of the internal detail of the map and identification of artifacts.

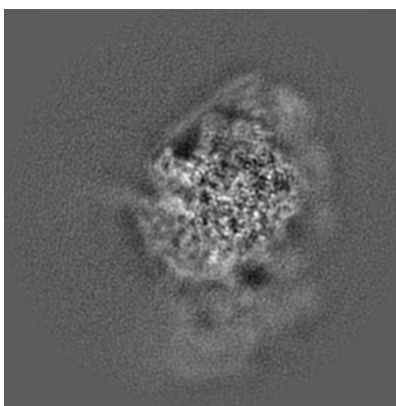
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

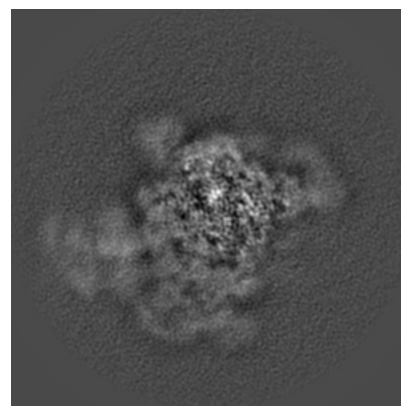
6.1.1 Primary map



X

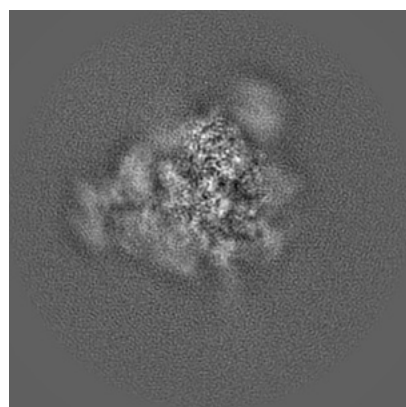


Y

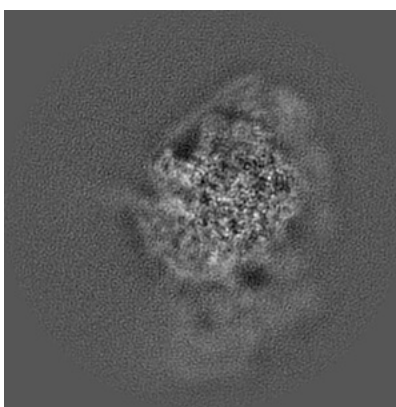


Z

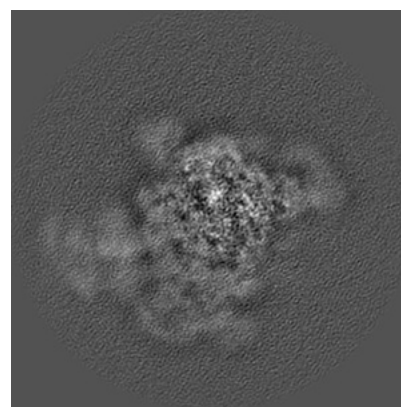
6.1.2 Raw map



X



Y

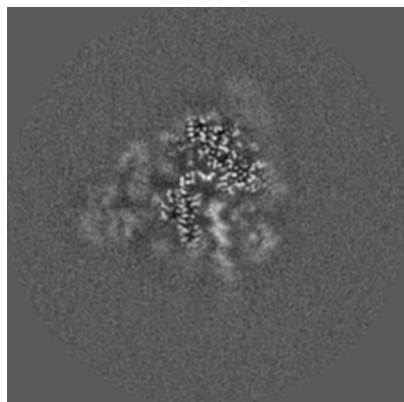


Z

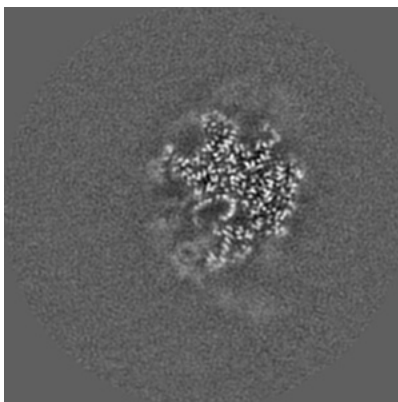
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

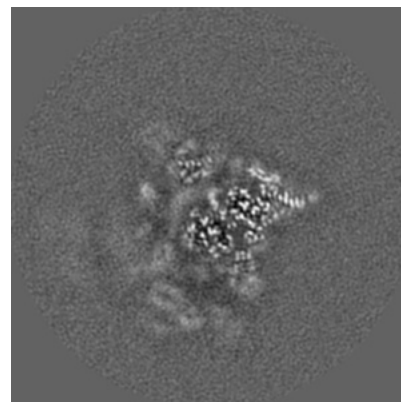
6.2.1 Primary map



X Index: 120

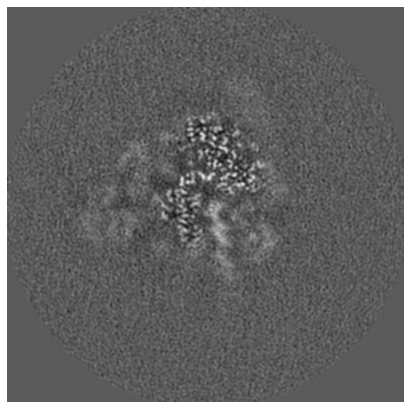


Y Index: 120

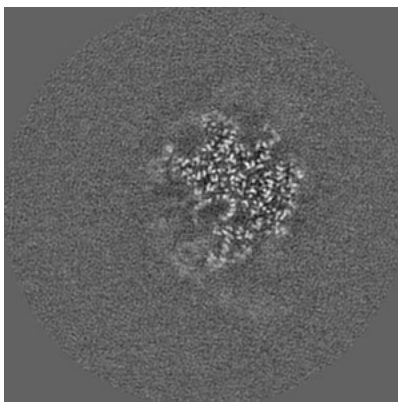


Z Index: 120

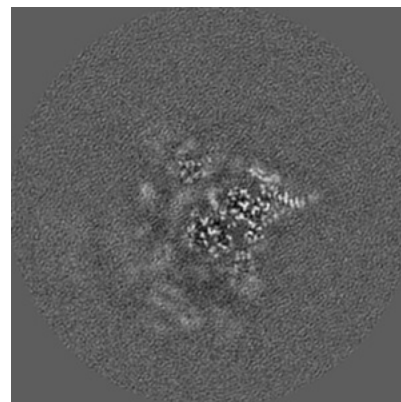
6.2.2 Raw map



X Index: 120



Y Index: 120

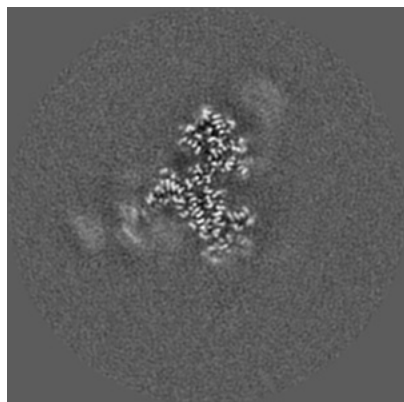


Z Index: 120

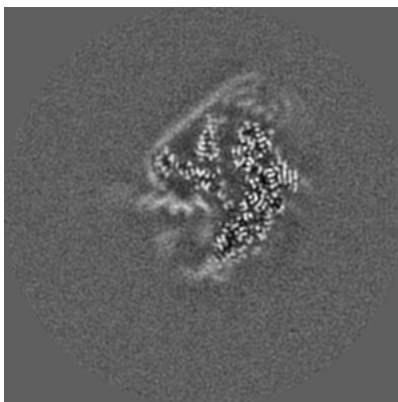
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

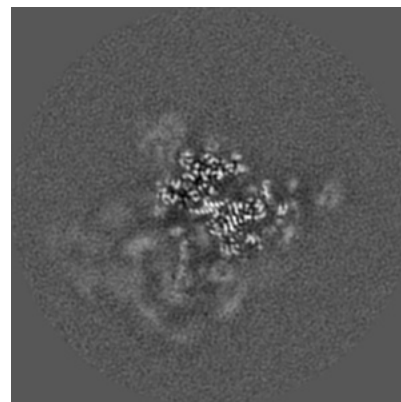
6.3.1 Primary map



X Index: 141

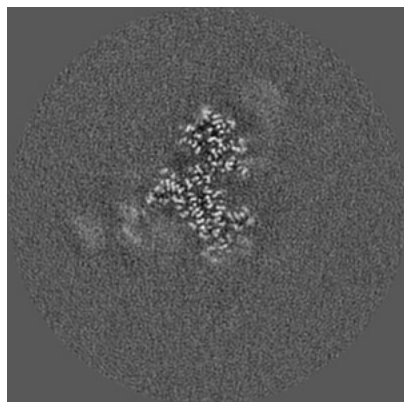


Y Index: 127

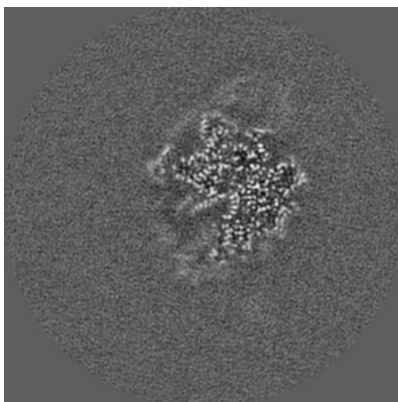


Z Index: 137

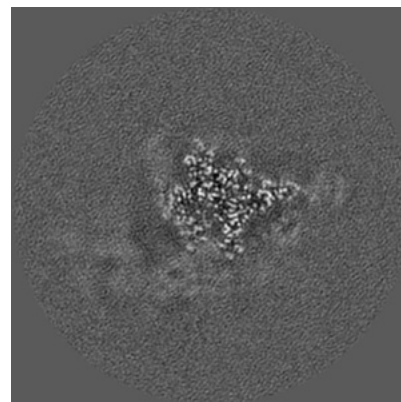
6.3.2 Raw map



X Index: 141



Y Index: 122

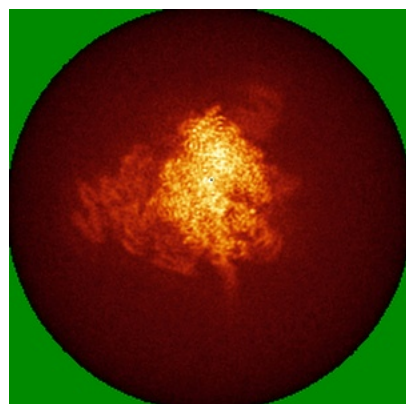


Z Index: 144

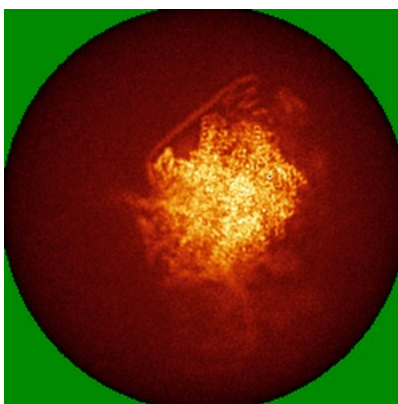
The images above show the largest variance slices of the map in three orthogonal directions.

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

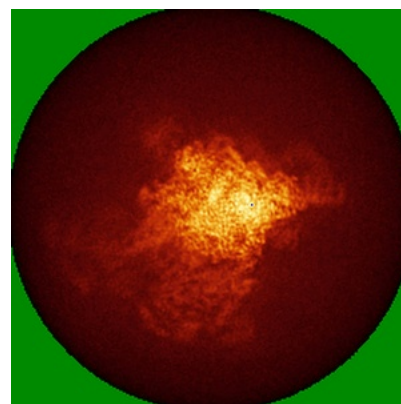
6.4.1 Primary map



X

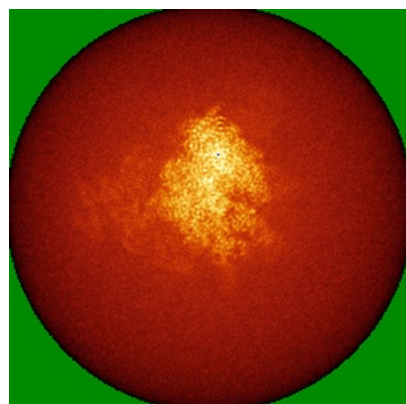


Y

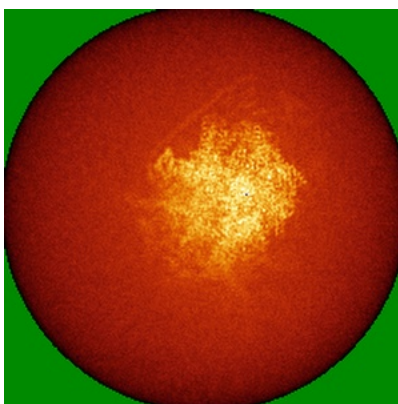


Z

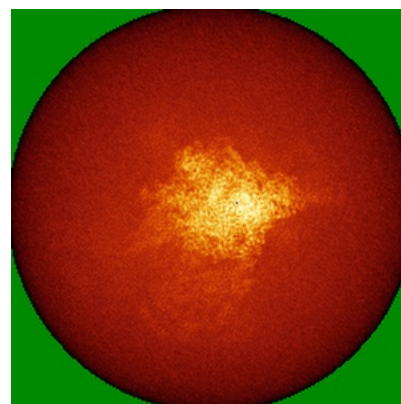
6.4.2 Raw map



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 0.009. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

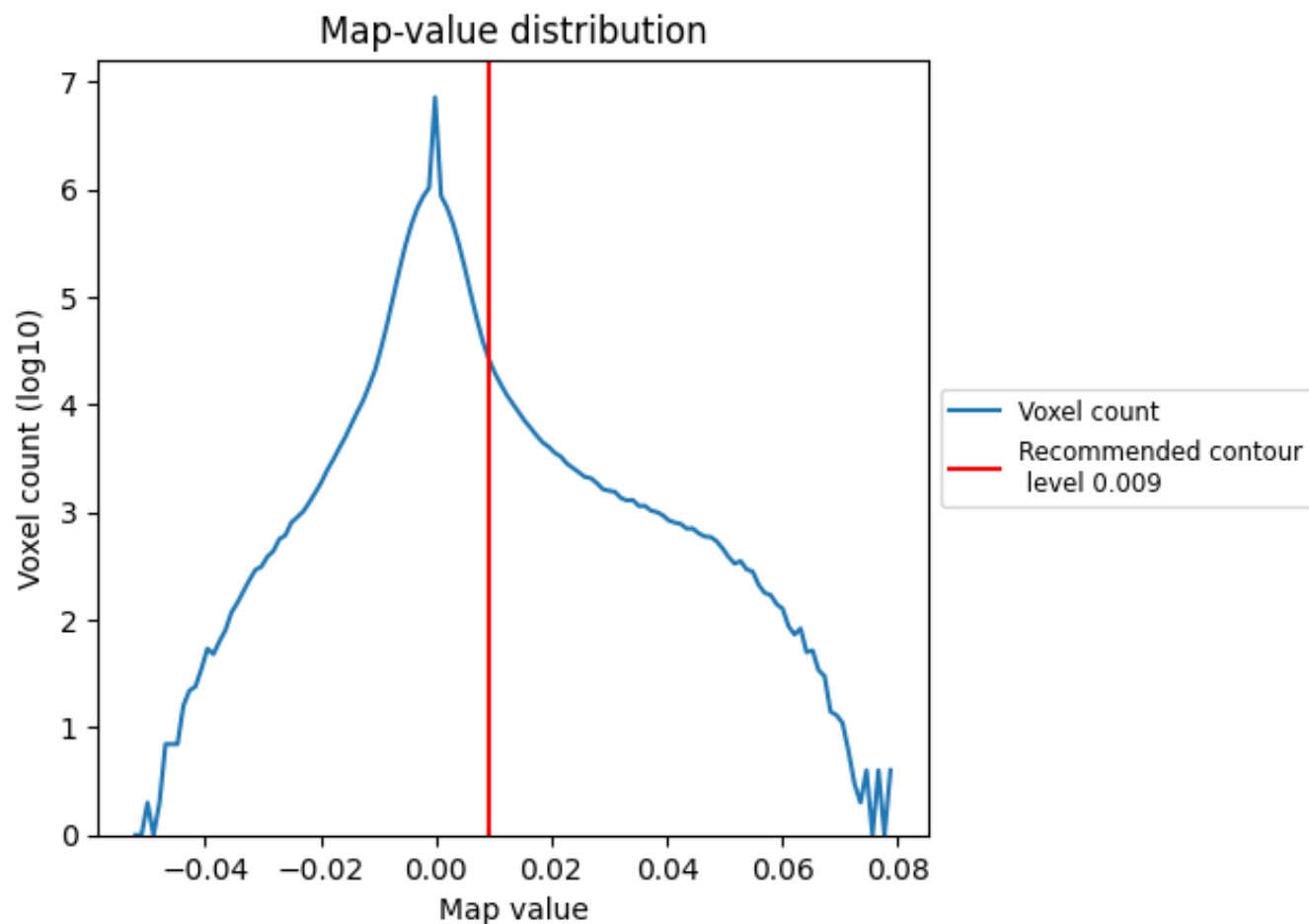
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

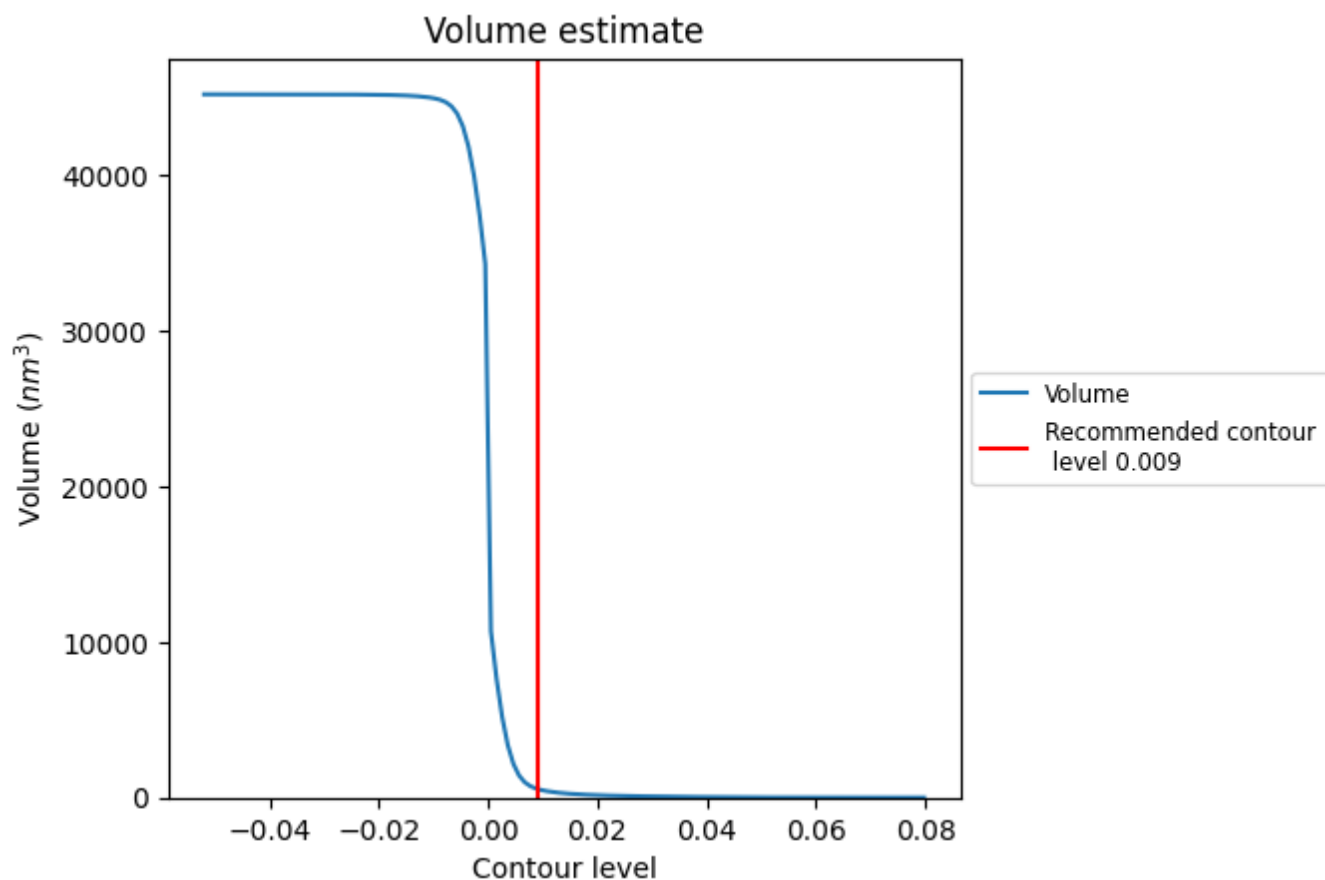
This section contains the results of statistical analysis of the map.

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.

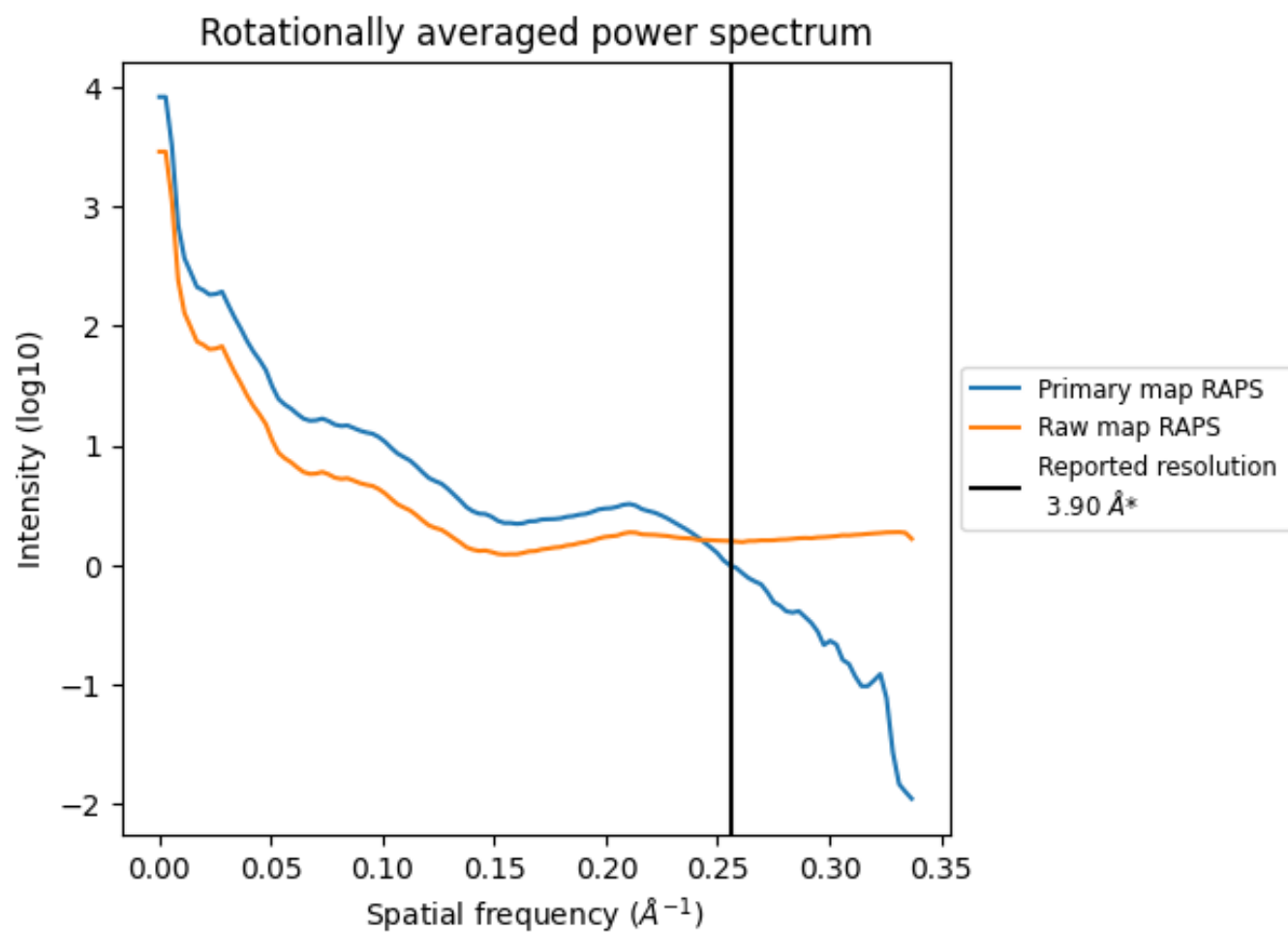
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 557 nm³; this corresponds to an approximate mass of 503 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 ⓘ

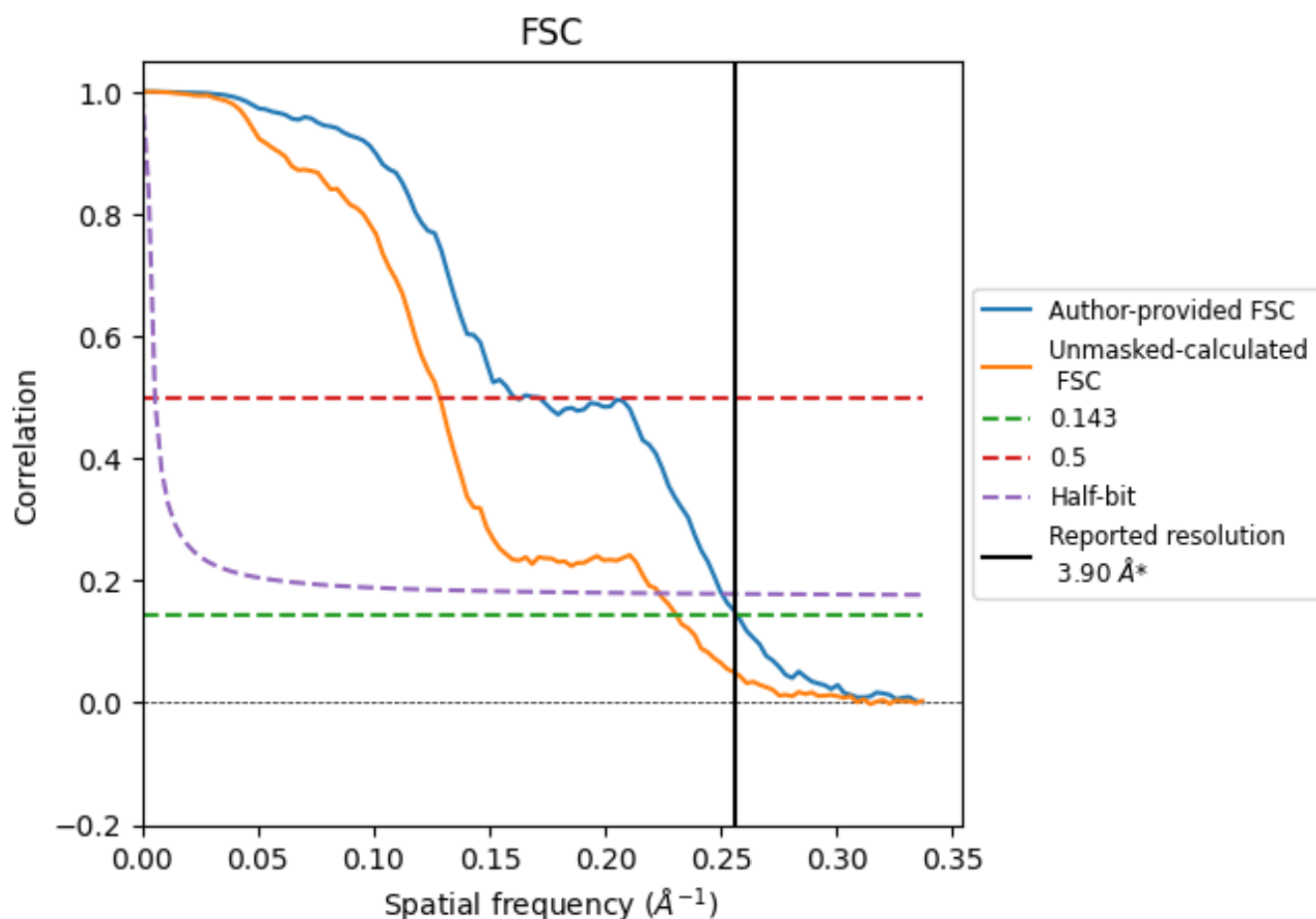


*Reported resolution corresponds to spatial frequency of 0.256 \AA^{-1}

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 0.256 \AA^{-1}

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.90	-	-
Author-provided FSC curve	3.89	6.21	3.99
Unmasked-calculated*	4.33	7.79	4.48

*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 4.33 differs from the reported value 3.9 by more than 10 %

9 Map-model fit [i](#)

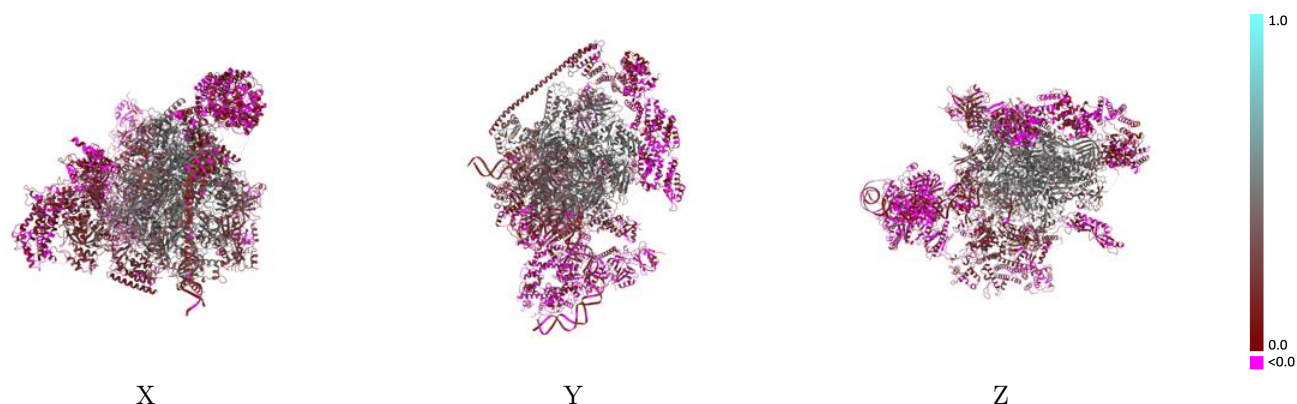
This section contains information regarding the fit between EMDB map EMD-33450 and PDB model 7XTI. Per-residue inclusion information can be found in section [3](#) on page [16](#).

9.1 Map-model overlay [i](#)



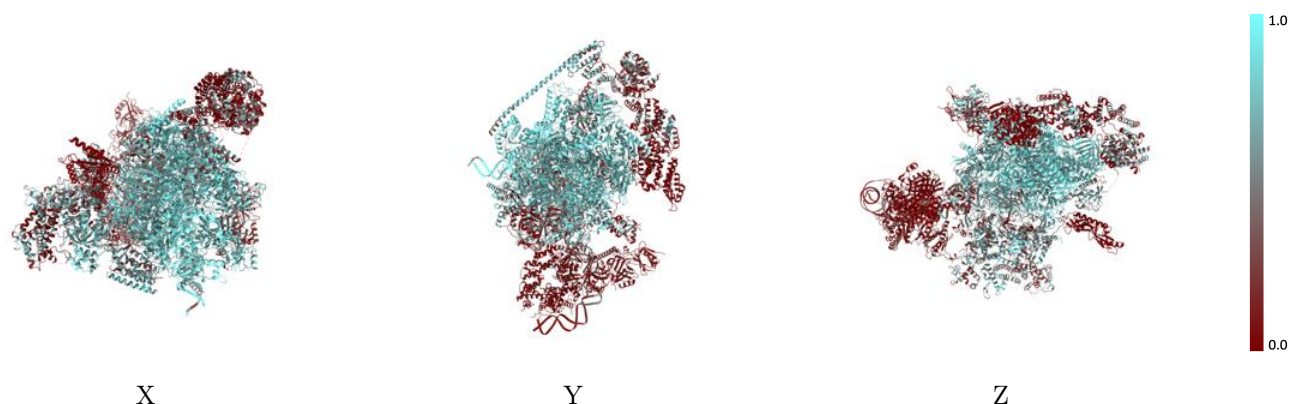
The images above show the 3D surface view of the map at the recommended contour level 0.009 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



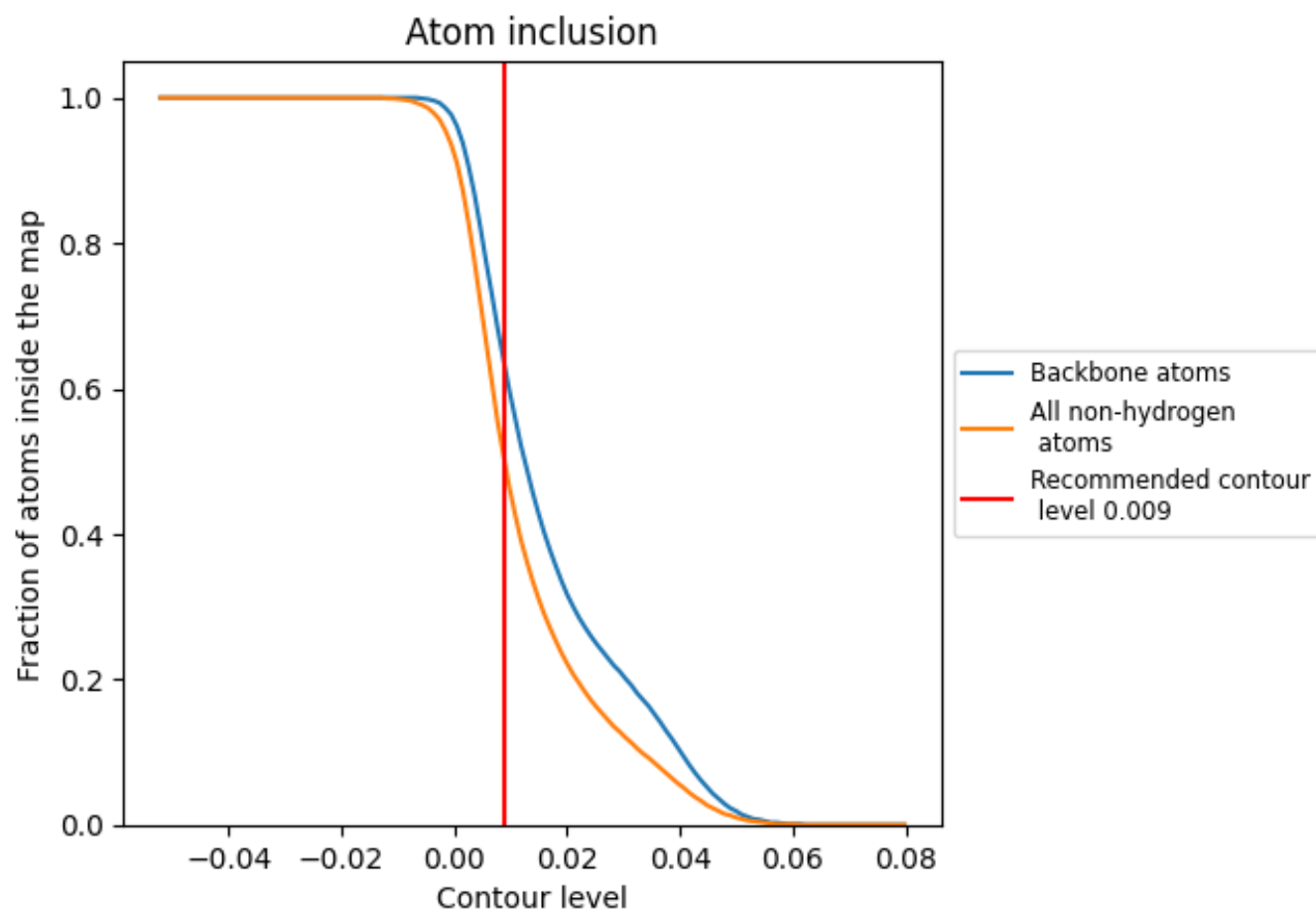
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.009).





































































9.4 Atom inclusion [i](#)



At the recommended contour level, 63% of all backbone atoms, 50% 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 (0.009) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.4970	 0.2230
A	 0.8010	 0.4150
B	 0.7730	 0.4240
C	 0.8280	 0.4490
D	 0.5760	 0.2200
E	 0.8190	 0.3930
F	 0.8340	 0.4540
G	 0.6500	 0.3110
H	 0.8320	 0.4370
I	 0.5660	 0.2580
J	 0.8030	 0.4390
K	 0.8600	 0.4490
L	 0.7760	 0.3940
M	 0.4840	 0.1560
N	 0.5170	 0.1350
P	 0.7170	 0.3150
T	 0.5760	 0.1810
V	 0.5270	 0.1470
W	 0.4440	 0.2020
a	 0.0510	 0.0260
b	 0.0130	 -0.0180
e	 0.0620	 0.0120
f	 0.0540	 0.0290
g	 0.0200	 -0.0390
h	 0.0110	 0.0110
j	 0.0970	 0.0240
k	 0.0470	 0.0070
m	 0.3840	 0.1050
n	 0.5920	 0.1790
q	 0.3060	 0.0760
r	 0.3890	 0.1540
u	 0.3300	 0.1560
v	 0.2050	 0.0880
x	 0.4290	 0.2490

