Full wwPDB EM Validation Report

Feb 24, 2026 – 04:29 PM JST

PDB ID	:	9WMW / pdb_00009wmw
EMDB ID	:	EMD-66107
Title	:	Co-transcriptional histone H3K36 methylation complex containing RNA polymerase II elongation complex, Set2, and the upstream nucleosome. (temp115, FACT-hexamer)
Authors	:	Kujirai, T.; Ehara, H.; Ito, T.; Henmi, M.; Sekine, S.; Kurumizaka, H.
Deposited on	:	2025-09-03
Resolution	:	3.62 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:

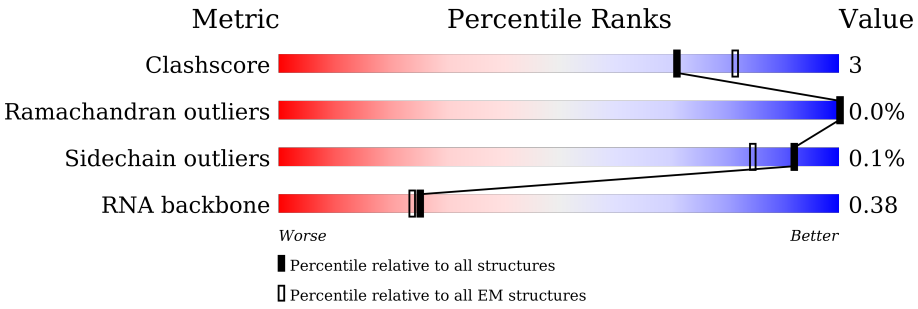
EMDB validation analysis	:	0.0.1.dev132
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48.1

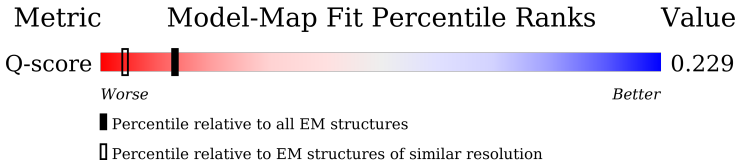
1 Overall quality at a glance

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

The reported resolution of this entry is 3.62 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	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	11773 (3.12 - 4.12)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1743	75% 5% 19%
2	B	1227	87% 7% 5%
3	C	304	82% 13%

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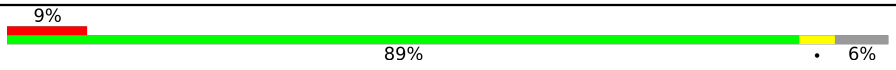
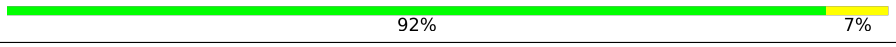
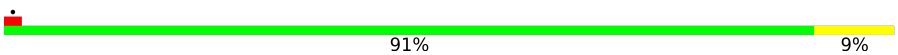
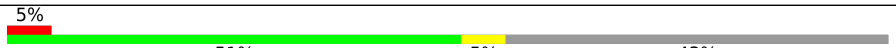
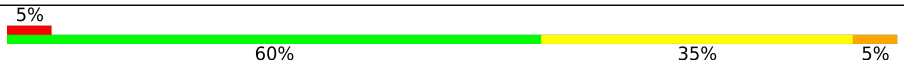
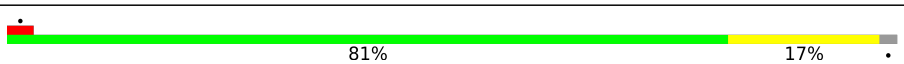
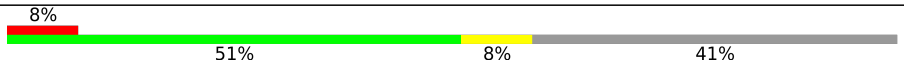
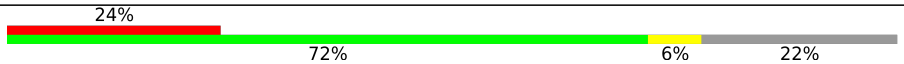
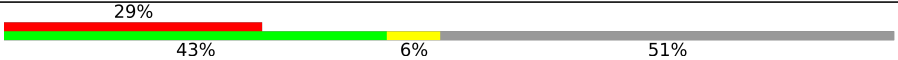
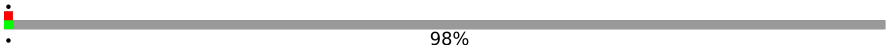
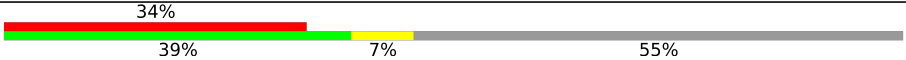
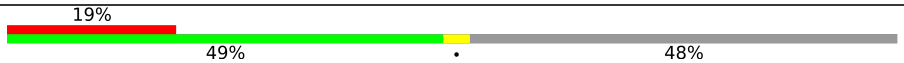
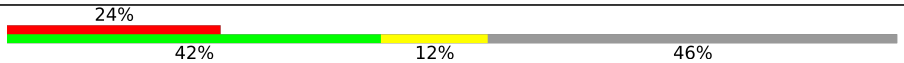
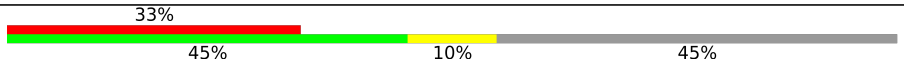
Mol	Chain	Length	Quality of chain
4	D	186	
5	E	214	
6	F	155	
7	G	171	
8	H	145	
9	I	115	
10	J	72	
11	K	118	
12	L	72	
13	M	113	
14	N	198	
15	P	20	
16	T	198	
17	V	108	
18	W	911	
19	m	1503	
20	n	417	
21	q	1084	
22	r	544	
23	s	725	
24	u	459	
25	v	396	
26	x	395	
27	a	139	
27	e	139	

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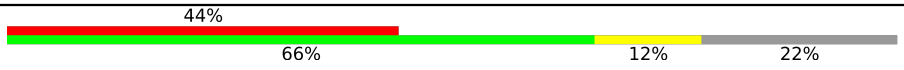
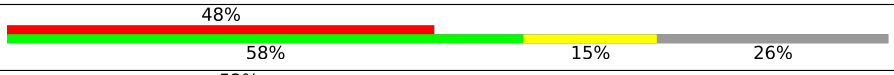
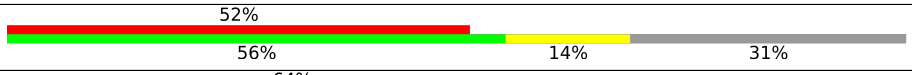
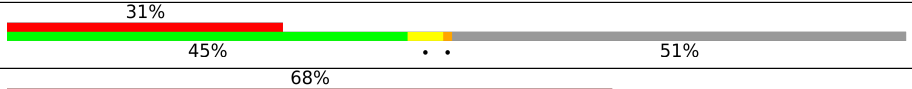
Mol	Chain	Length	Quality of chain
28	b	106	
28	f	106	
29	g	133	
30	h	129	
31	j	965	
32	k	531	

2 Entry composition

There are 34 unique types of molecules in this entry. The entry contains 78756 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
			Total	C	N	O	S		
1	A	1404	11064	6975	1930	2089	70	0	0

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

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

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

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

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

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

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

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

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

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

- 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	75	Total	C	N	O	P	0	0
			1548	732	276	465	75		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	20	Total	C	N	O	P	0	0
			417	186	64	147	20		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
16	T	86	Total	C	N	O	P	0	0
			1758	828	348	496	86		

- 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	535	Total	C	N	O	S	0	0
			4250	2680	754	814	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	1178	Total	C	N	O	S	0	0
			9653	6112	1648	1866	27		

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

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Chain	Residue	Modelled	Actual	Comment	Reference
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 subunit.

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 Histone-lysine N-methyltransferase, H3 lysine-36 specific.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	s	11	Total	C	N	O	0	0
			91	60	14	17		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
s	-2	GLY	-	expression tag	UNP C4QY01
s	-1	PRO	-	expression tag	UNP C4QY01
s	0	GLY	-	expression tag	UNP C4QY01

- Molecule 24 is a protein called Leo1.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	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

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Chain	Residue	Modelled	Actual	Comment	Reference
u	-1	SER	-	expression tag	UNP C4R3K1
u	0	GLY	-	expression tag	UNP C4R3K1

- Molecule 25 is a protein called RNAP II-associated protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	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
v	-1	SER	-	expression tag	UNP C4R997
v	0	ALA	-	expression tag	UNP C4R997

- Molecule 26 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
26	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

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

- Molecule 27 is a protein called Histone H3.3.

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

There are 8 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
a	36	MET	LYS	variant	UNP P84243
e	-3	GLY	-	expression tag	UNP P84243
e	-2	SER	-	expression tag	UNP P84243
e	-1	HIS	-	expression tag	UNP P84243
e	36	MET	LYS	variant	UNP P84243

- Molecule 28 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	83	Total	C	N	O	S	0	0
			662	418	129	114	1		
28	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 29 is a protein called Histone H2A type 1-B/E.

Mol	Chain	Residues	Atoms				AltConf	Trace
29	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 30 is a protein called Histone H2B type 1-J.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	h	93	Total	C	N	O	S	0	0
			722	453	129	137	3		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
h	-3	GLY	-	expression tag	UNP P06899
h	-2	SER	-	expression tag	UNP P06899
h	-1	HIS	-	expression tag	UNP P06899
h	120	CYS	LYS	engineered mutation	UNP P06899

- Molecule 31 is a protein called FACT complex subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	j	471	Total	C	N	O	S	0	0
			3794	2406	663	712	13		

There are 27 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
j	939	UNK	-	expression tag	UNP C4QYQ8
j	940	UNK	-	expression tag	UNP C4QYQ8
j	941	UNK	-	expression tag	UNP C4QYQ8
j	942	UNK	-	expression tag	UNP C4QYQ8
j	943	UNK	-	expression tag	UNP C4QYQ8
j	944	UNK	-	expression tag	UNP C4QYQ8
j	945	UNK	-	expression tag	UNP C4QYQ8
j	946	UNK	-	expression tag	UNP C4QYQ8
j	947	UNK	-	expression tag	UNP C4QYQ8
j	948	UNK	-	expression tag	UNP C4QYQ8
j	949	UNK	-	expression tag	UNP C4QYQ8
j	950	UNK	-	expression tag	UNP C4QYQ8
j	951	UNK	-	expression tag	UNP C4QYQ8
j	952	UNK	-	expression tag	UNP C4QYQ8
j	953	UNK	-	expression tag	UNP C4QYQ8
j	954	UNK	-	expression tag	UNP C4QYQ8
j	955	UNK	-	expression tag	UNP C4QYQ8
j	956	UNK	-	expression tag	UNP C4QYQ8
j	957	UNK	-	expression tag	UNP C4QYQ8
j	958	UNK	-	expression tag	UNP C4QYQ8
j	959	UNK	-	expression tag	UNP C4QYQ8
j	960	UNK	-	expression tag	UNP C4QYQ8
j	961	UNK	-	expression tag	UNP C4QYQ8
j	962	UNK	-	expression tag	UNP C4QYQ8

- Molecule 32 is a protein called FACT complex subunit POB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	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 33 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

- Molecule 34 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

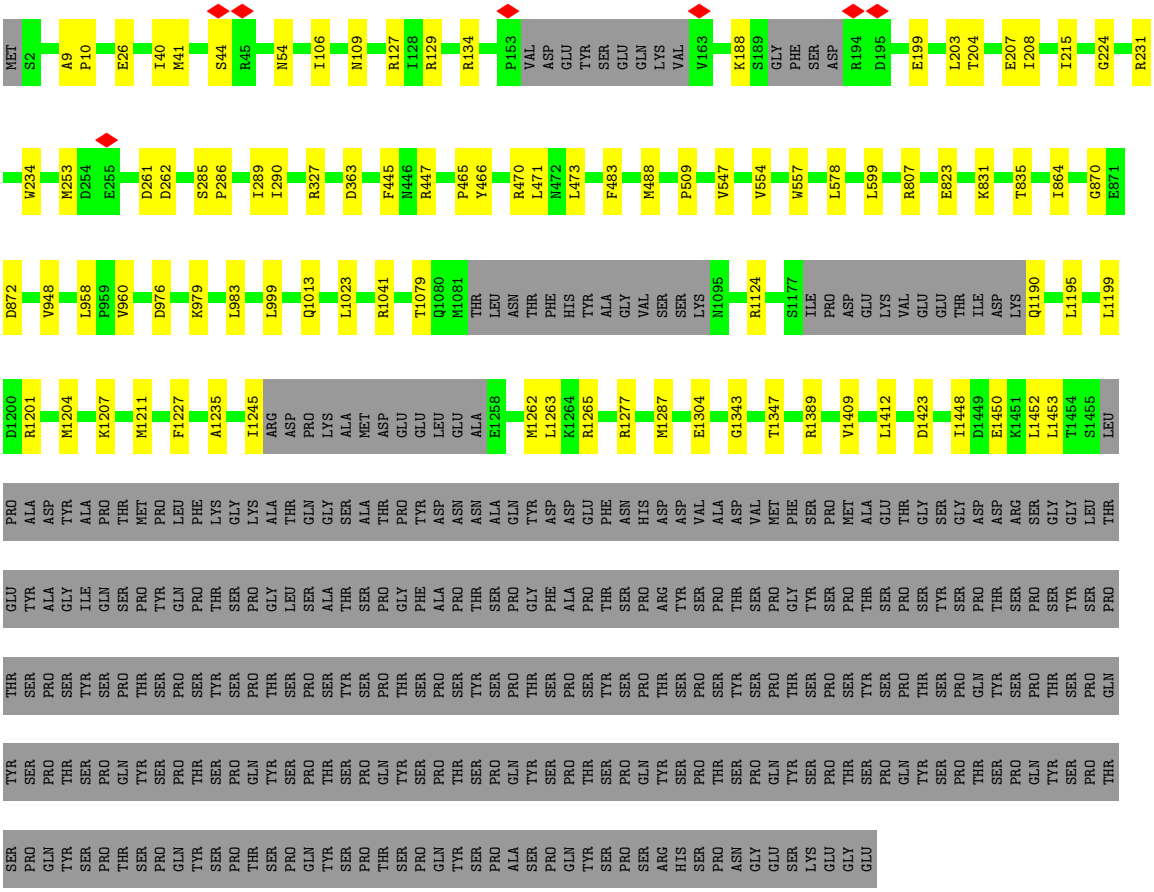
Mol	Chain	Residues	Atoms	AltConf
34	A	1	Total Mg 1 1	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

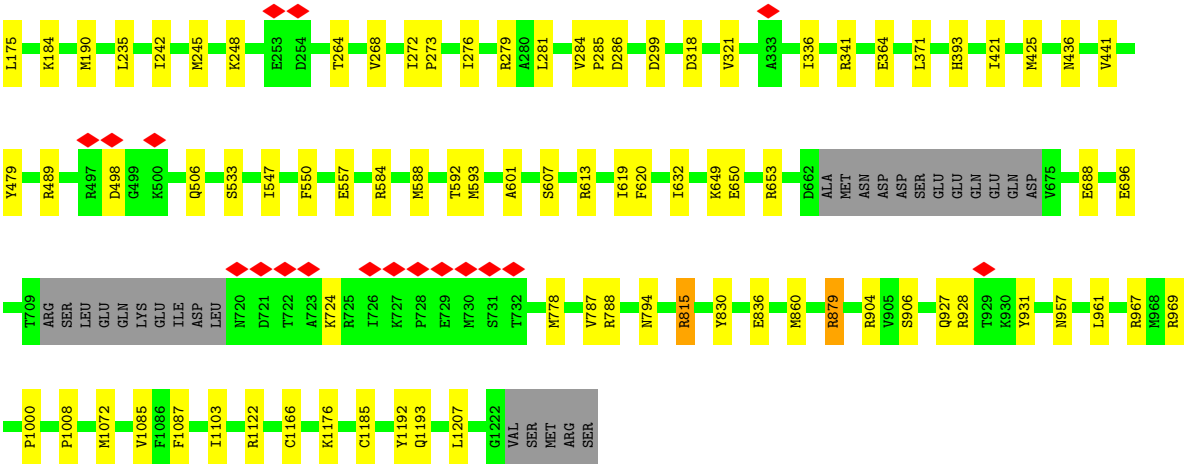
• Molecule 1: DNA-directed RNA polymerase subunit

Chain A:

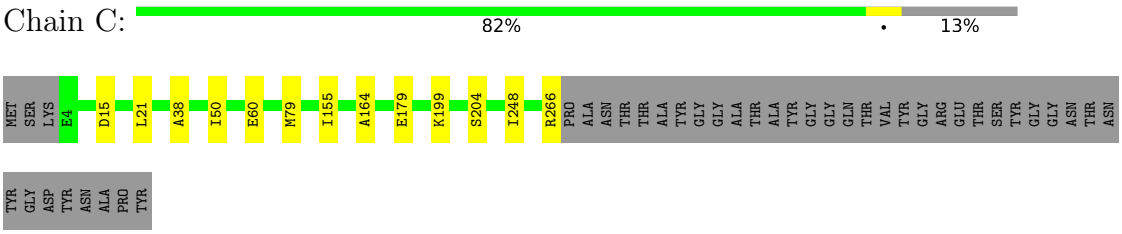


• Molecule 2: DNA-directed RNA polymerase subunit beta

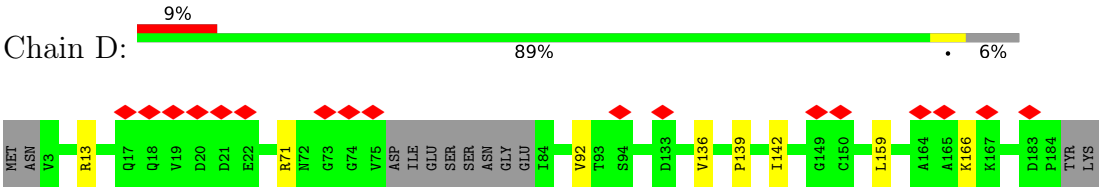
Chain B:



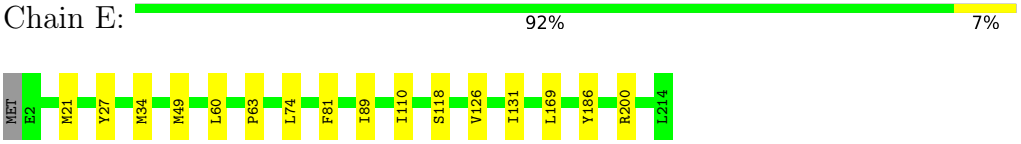
• Molecule 3: RNA polymerase II third largest subunit B44, part of central core



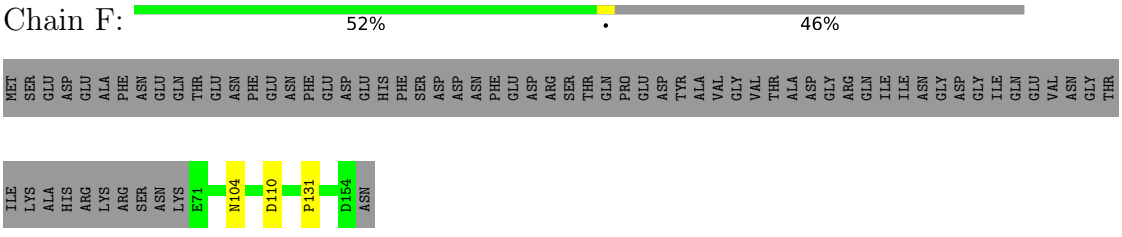
• Molecule 4: RNA polymerase II subunit B32



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

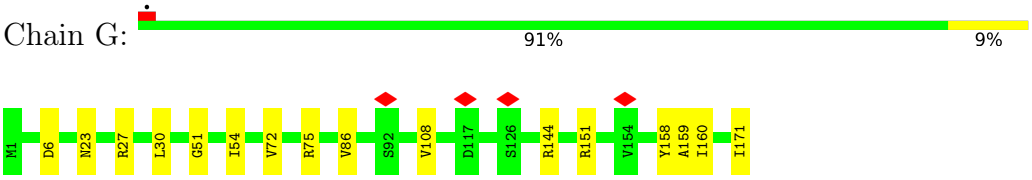


• Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC2



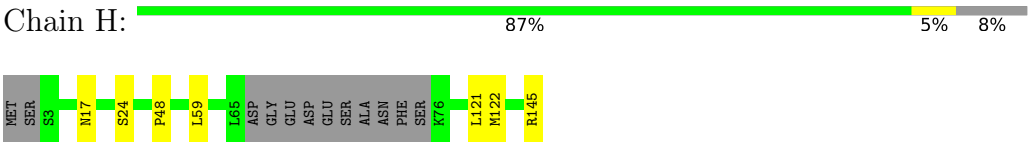
• Molecule 7: RNA polymerase II subunit

Chain G:



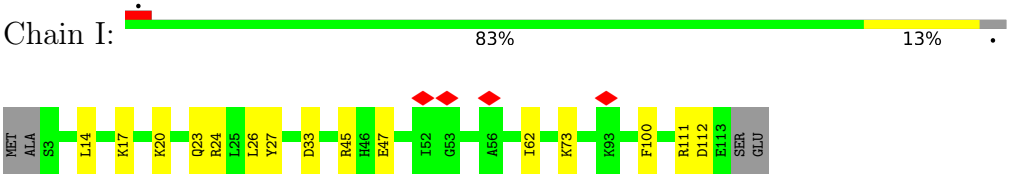
• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC3

Chain H:



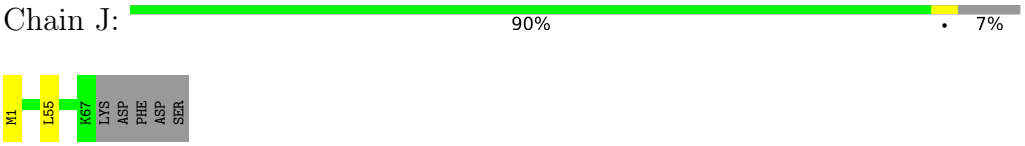
• Molecule 9: DNA-directed RNA polymerase subunit

Chain I:



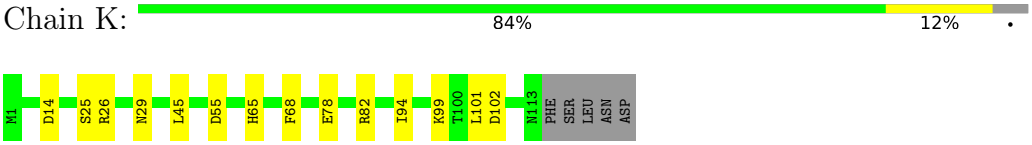
• Molecule 10: RNA polymerase subunit ABC10-beta, common to RNA polymerases I, II, and III

Chain J:



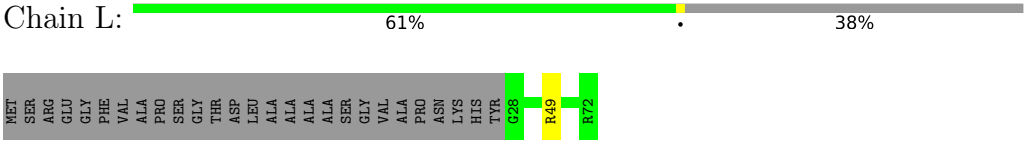
• Molecule 11: RNA polymerase II subunit B12.5

Chain K:



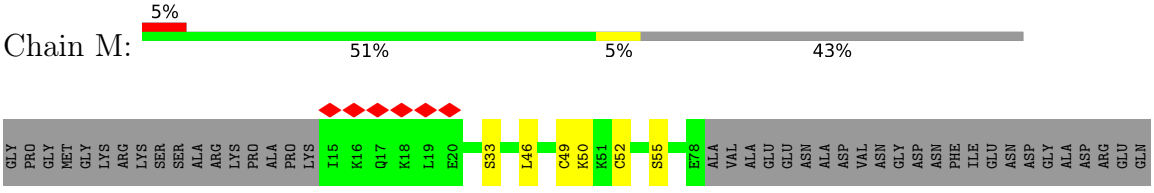
• Molecule 12: RNA polymerase subunit ABC10-alpha

Chain L:



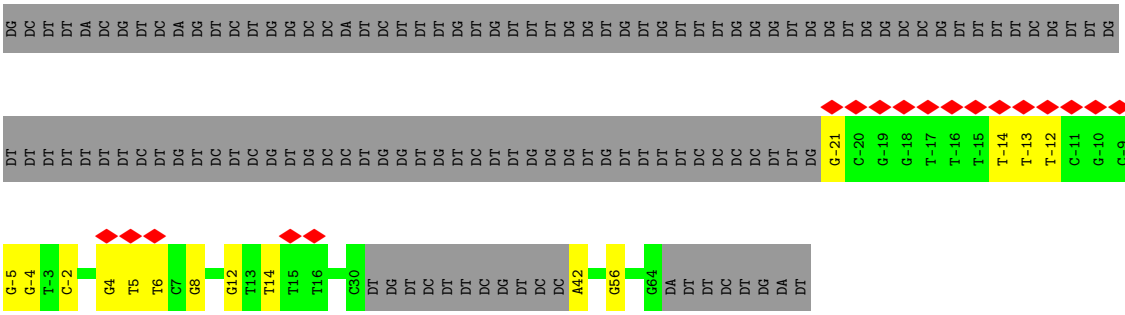
• Molecule 13: Transcription elongation factor 1 homolog

Chain M:



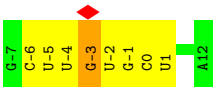
• Molecule 14: DNA (198-MER)

Chain N:



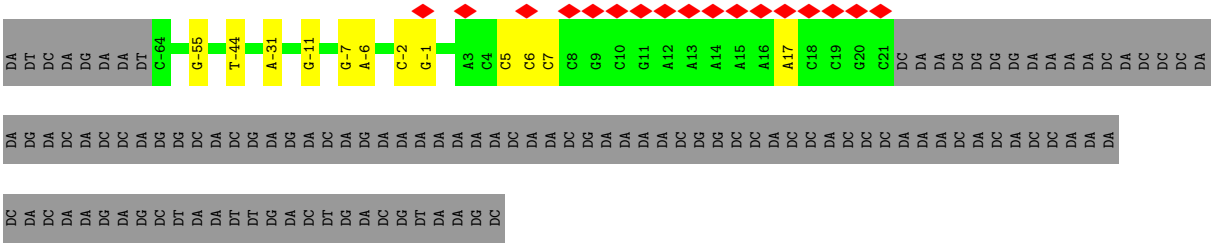
• Molecule 15: RNA (5'-R(P*GP*CP*UP*UP*GP*UP*GP*CP*UP*GP*UP*CP*UP*UP*CP*GP*UP*CP*CP*A)-3')

Chain P:



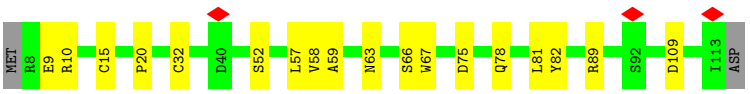
• Molecule 16: DNA (198-MER)

Chain T:



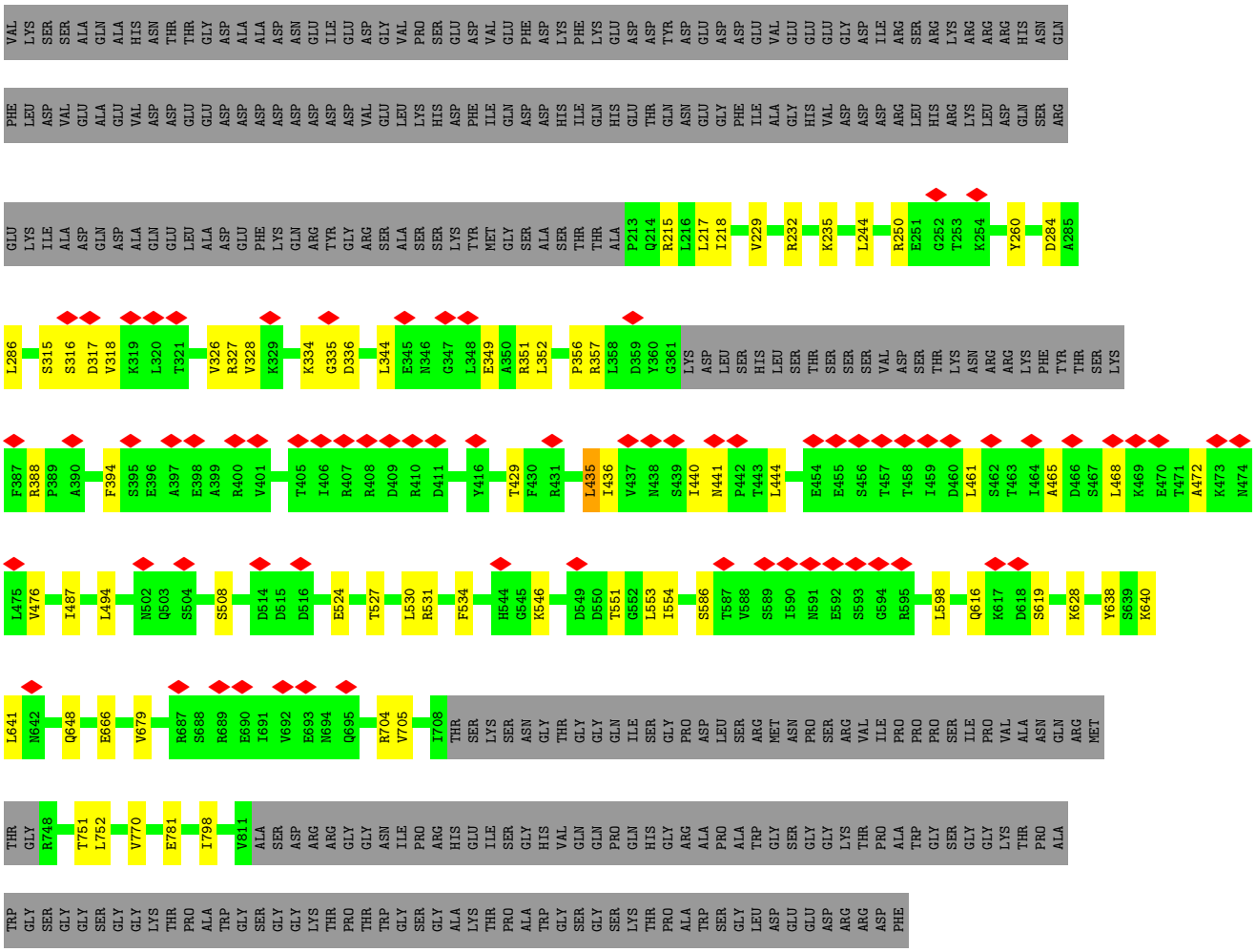
• Molecule 17: Transcription elongation factor SPT4

Chain V:



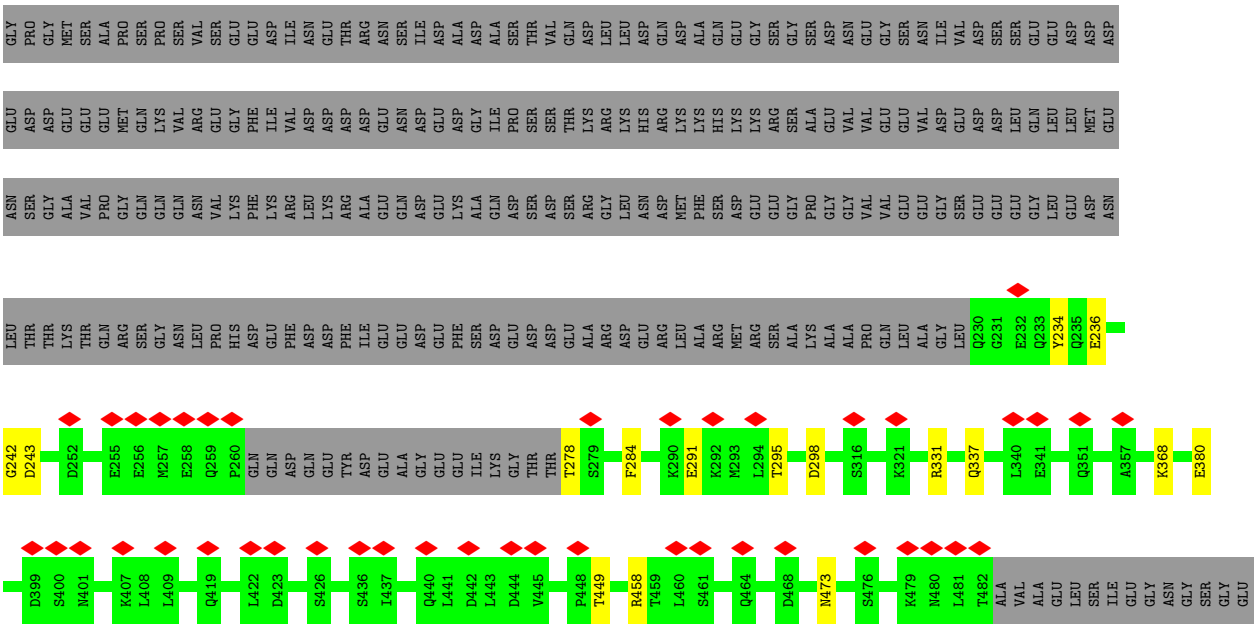
• Molecule 18: Transcription elongation factor SPT5

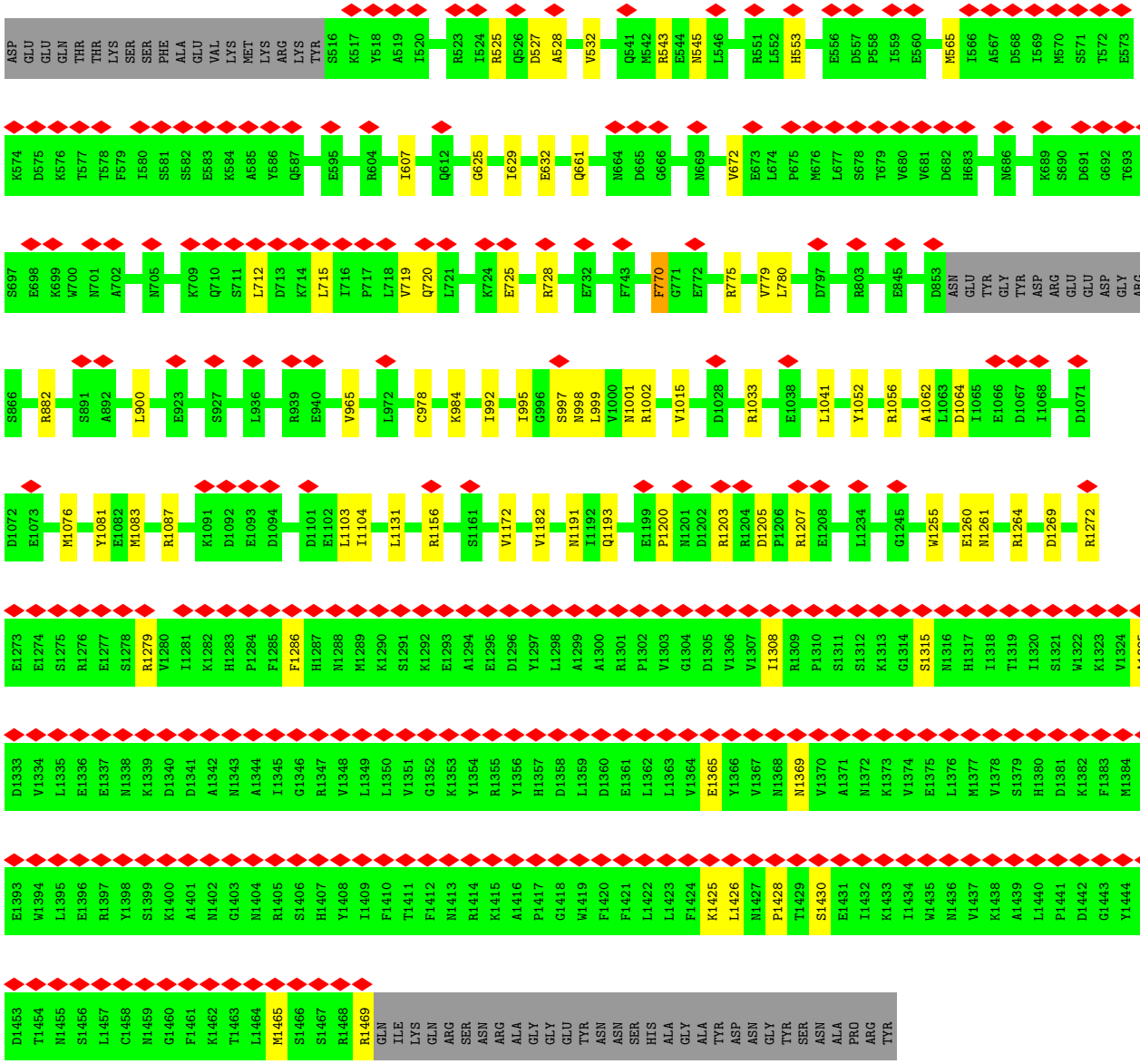
Chain W:



• Molecule 19: Transcription elongation factor Spt6

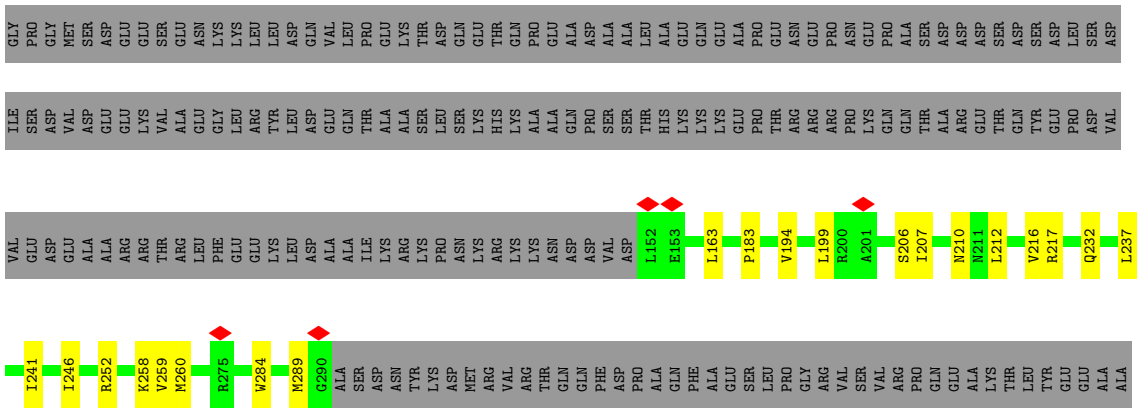
Chain m:

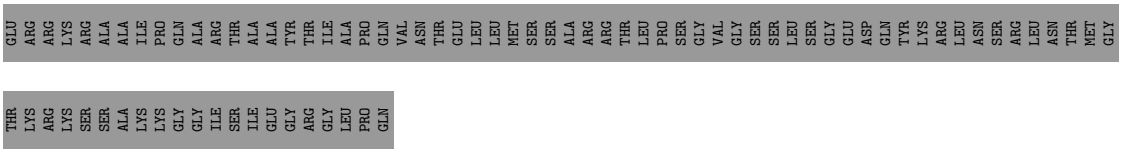




• Molecule 20: Protein that interacts with Spt6p and copurifies with Spt5p and RNA polymerase II

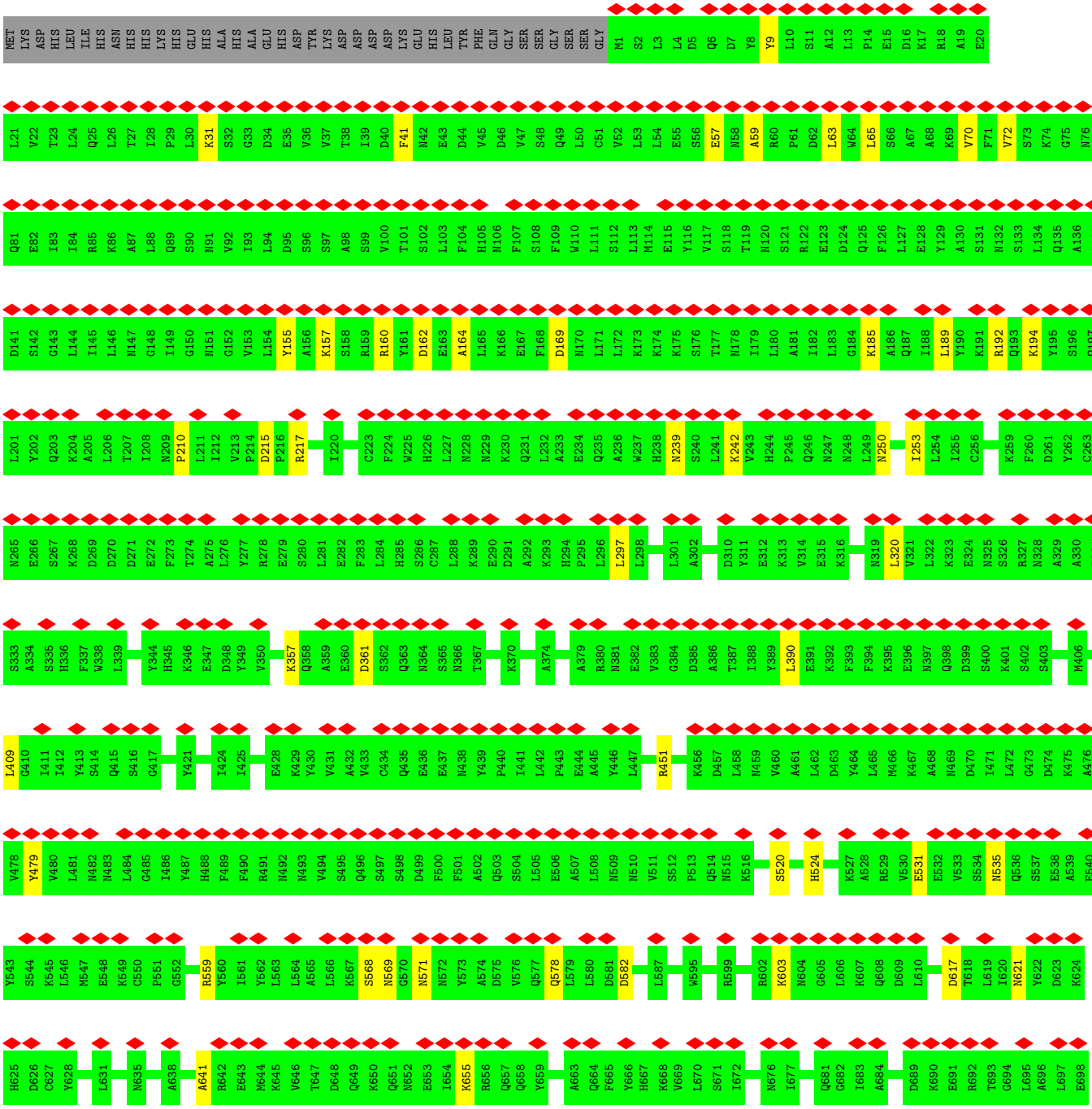
Chain n:

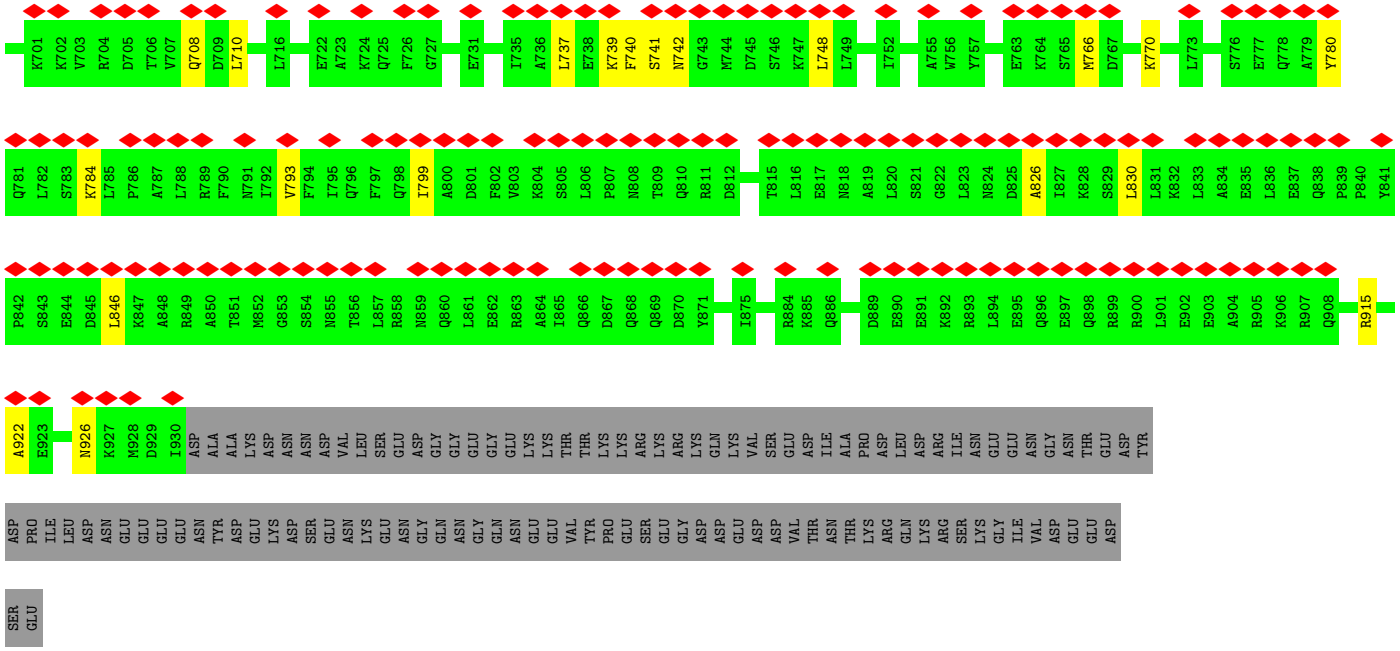




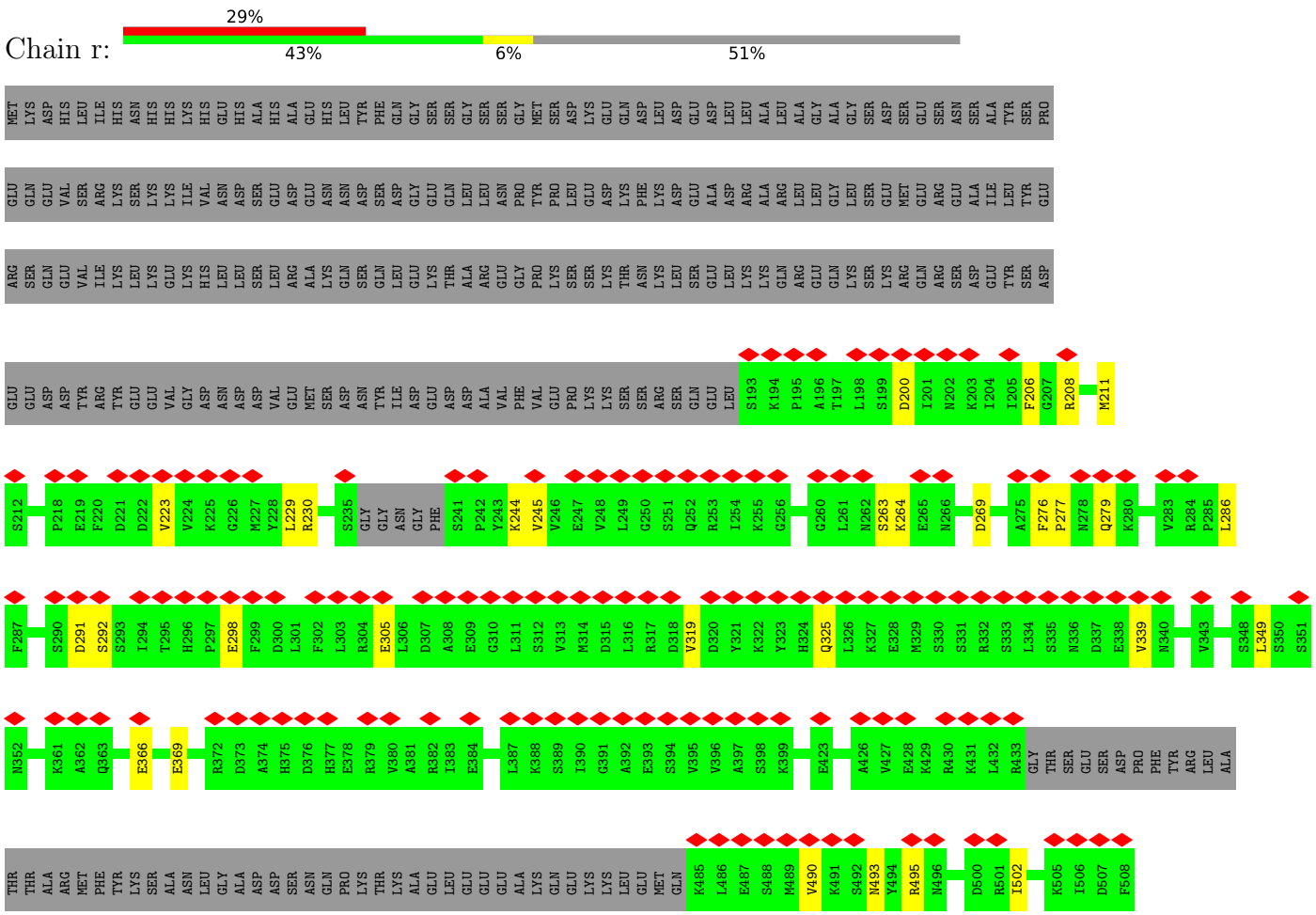
• Molecule 21: Component of the Paf1p complex

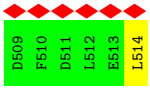
Chain q:





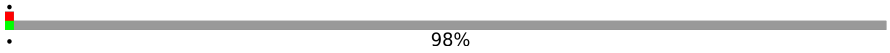
• Molecule 22: RNAPII-associated chromatin remodeling Paf1 complex subunit

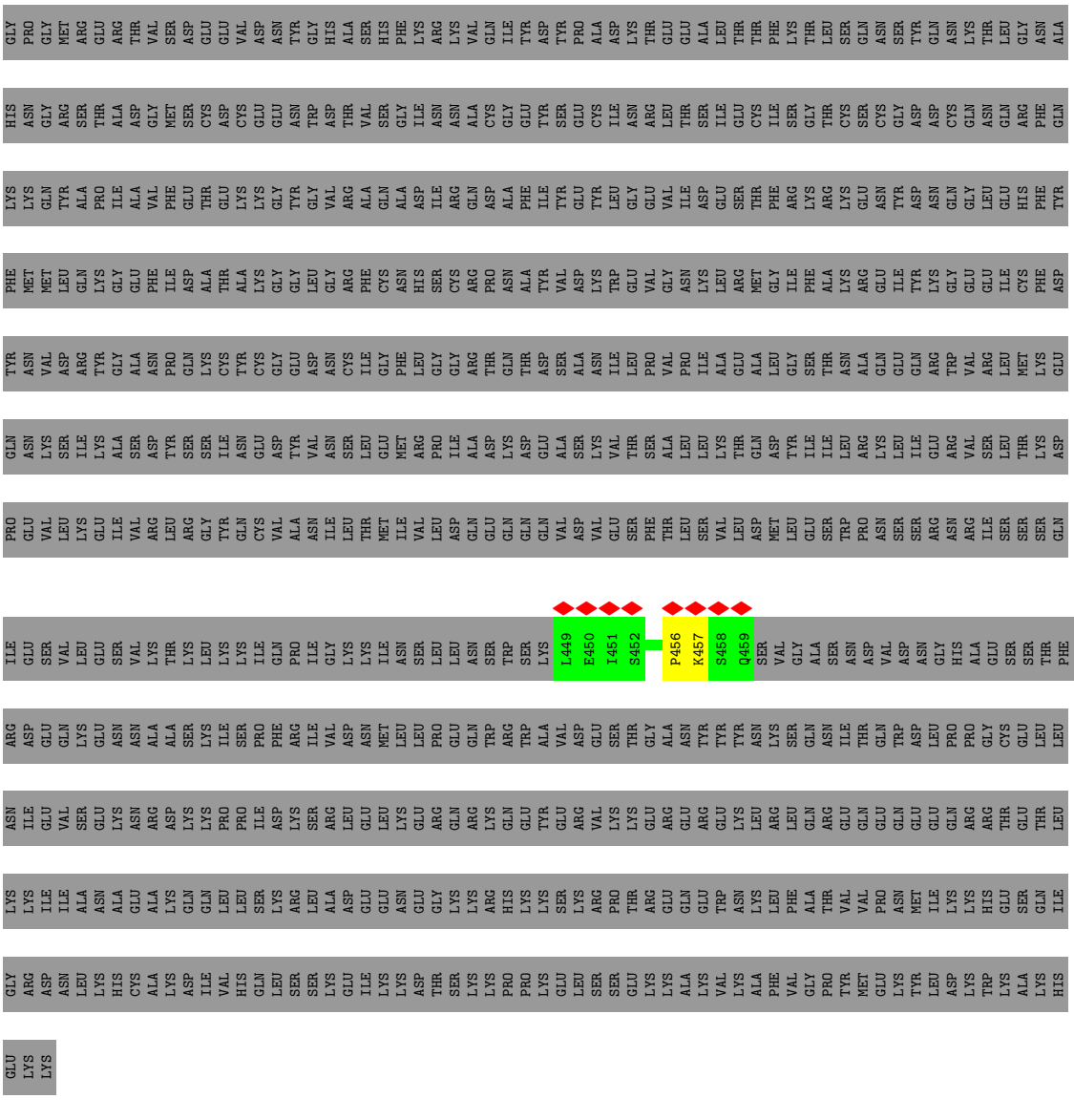




• Molecule 23: Histone-lysine N-methyltransferase, H3 lysine-36 specific

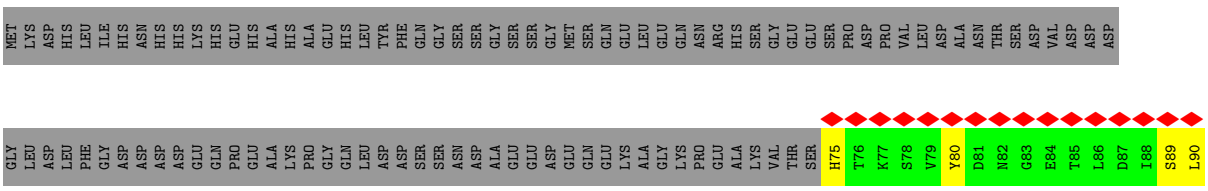
Chain s:

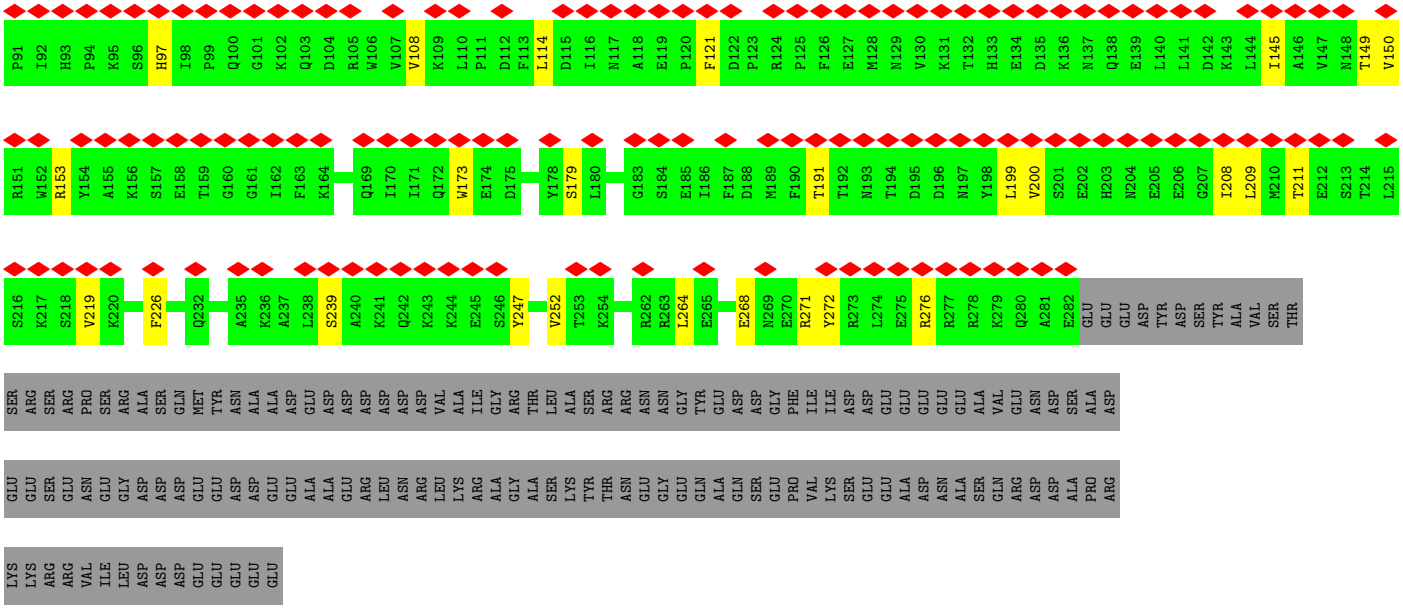




• Molecule 24: Leo1

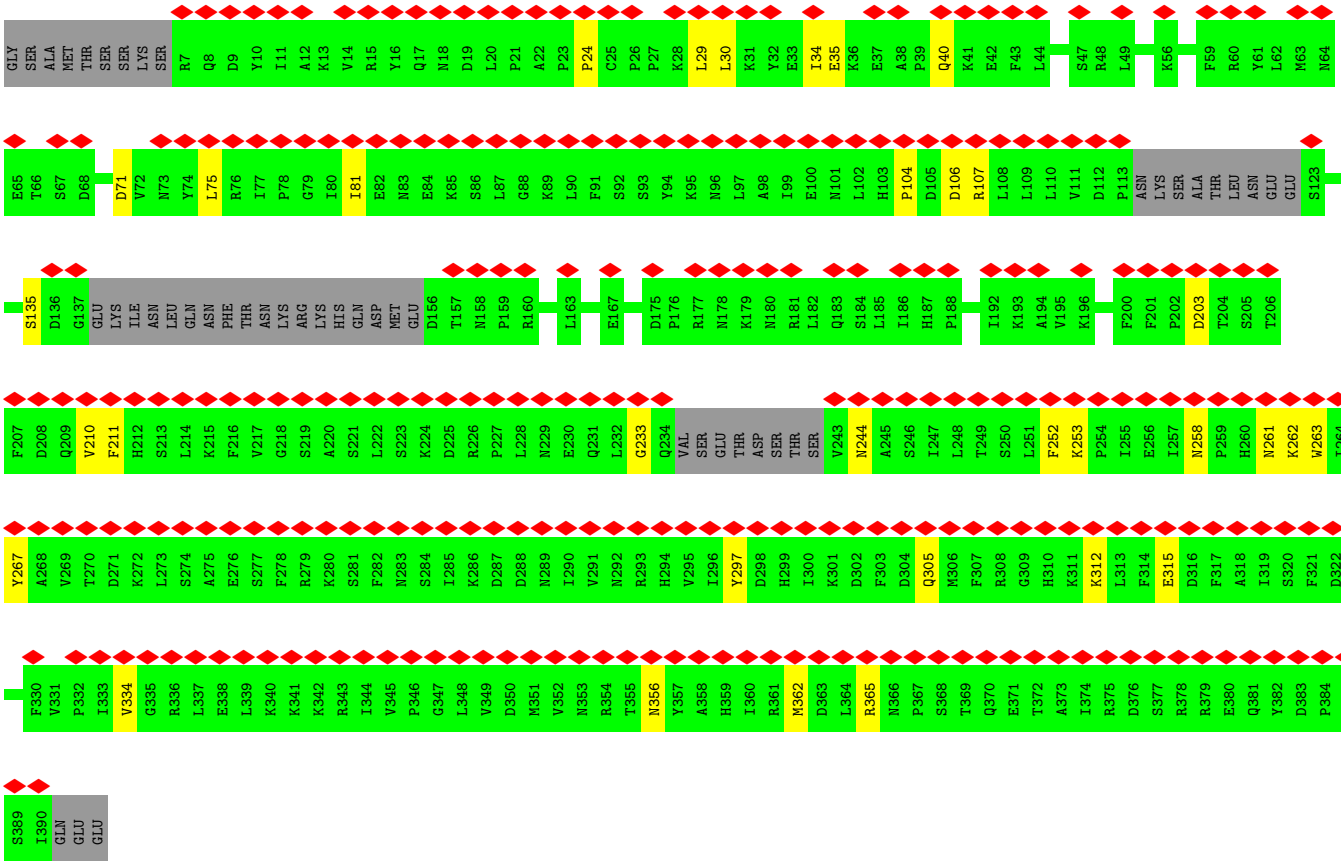
Chain u:





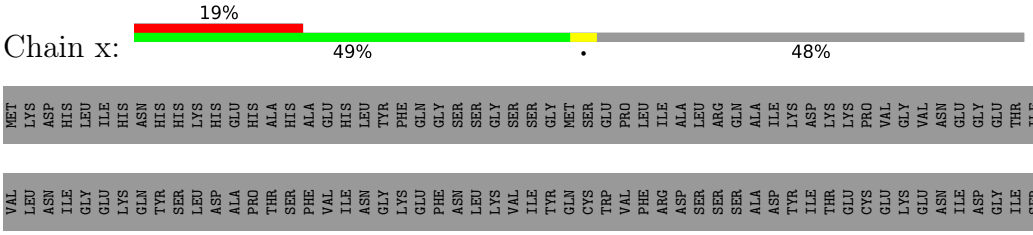
• Molecule 25: RNAP II-associated protein

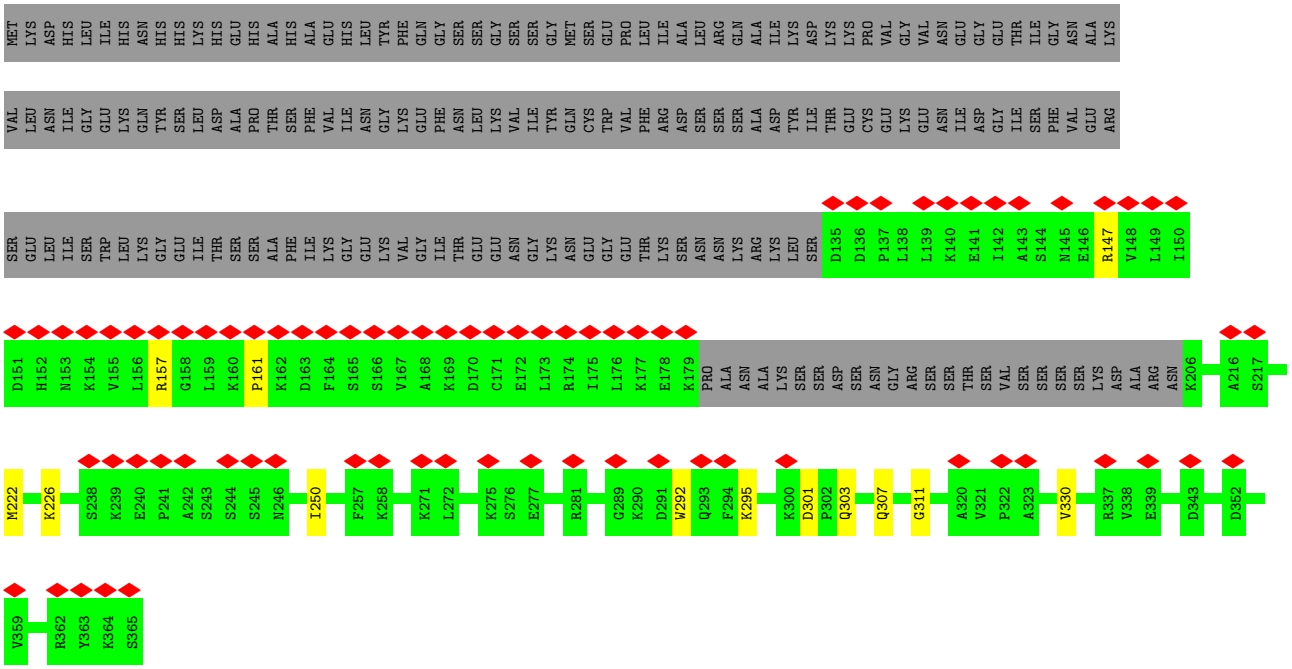
Chain v:



• Molecule 26: Constituent of Paf1 complex with RNA polymerase II, Paf1p, Hpr1p, Ctr9, Leo1, Rtf1 and Ccr4p

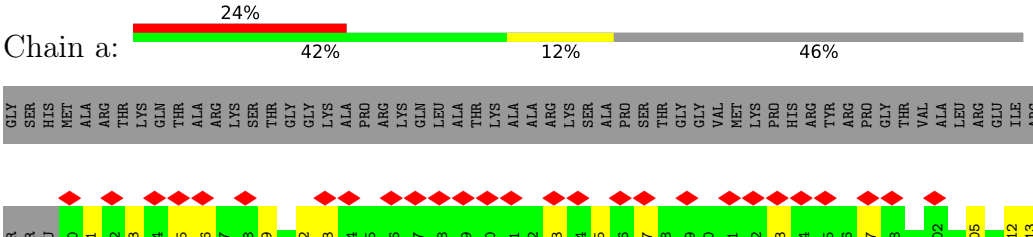
Chain x:

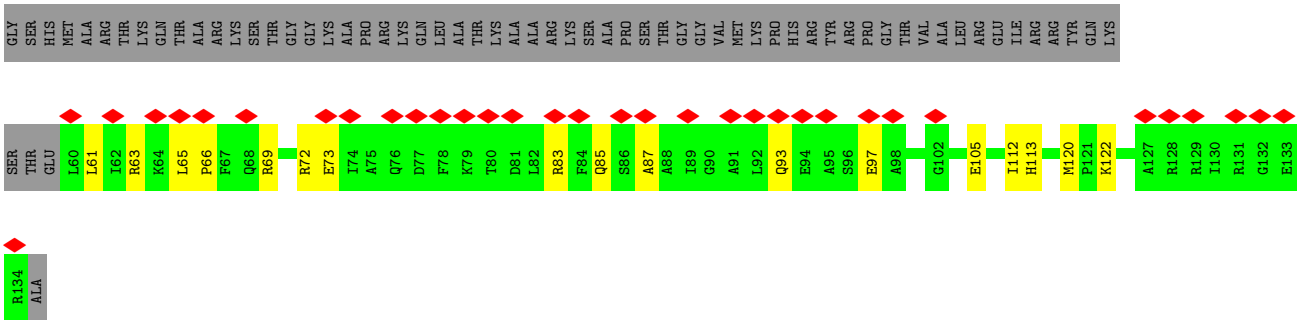




• Molecule 27: Histone H3.3

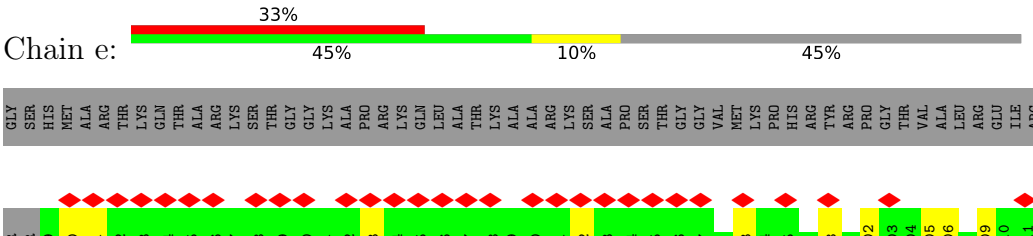
Chain a:

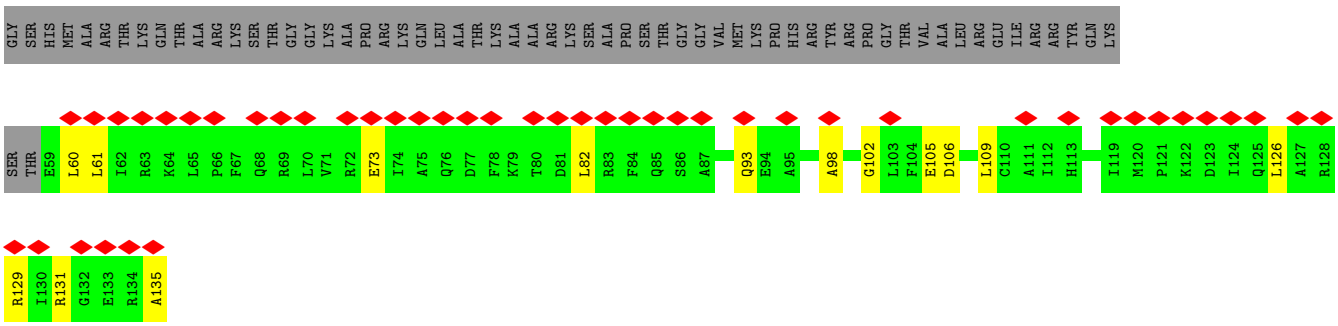




• Molecule 27: Histone H3.3

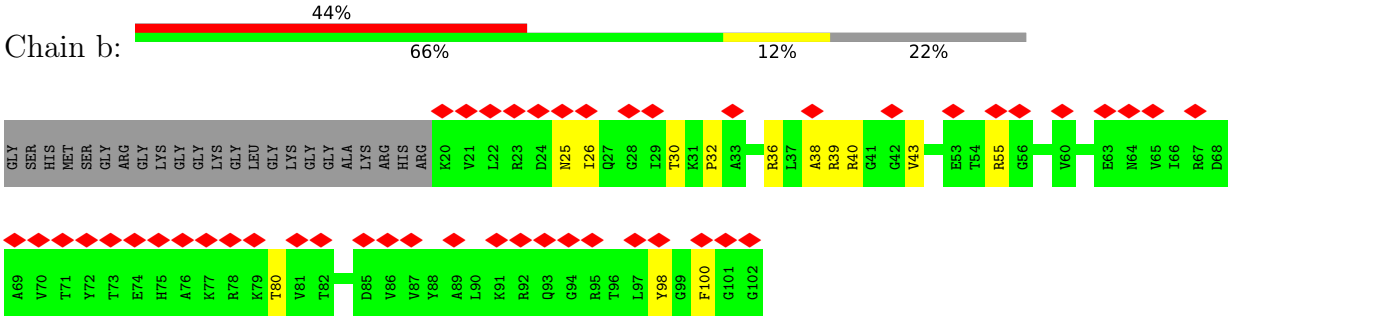
Chain e:





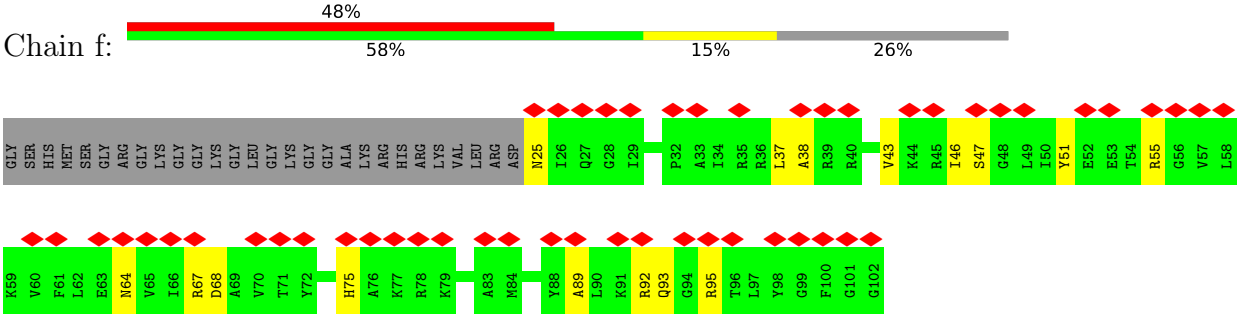
• Molecule 28: Histone H4

Chain b:



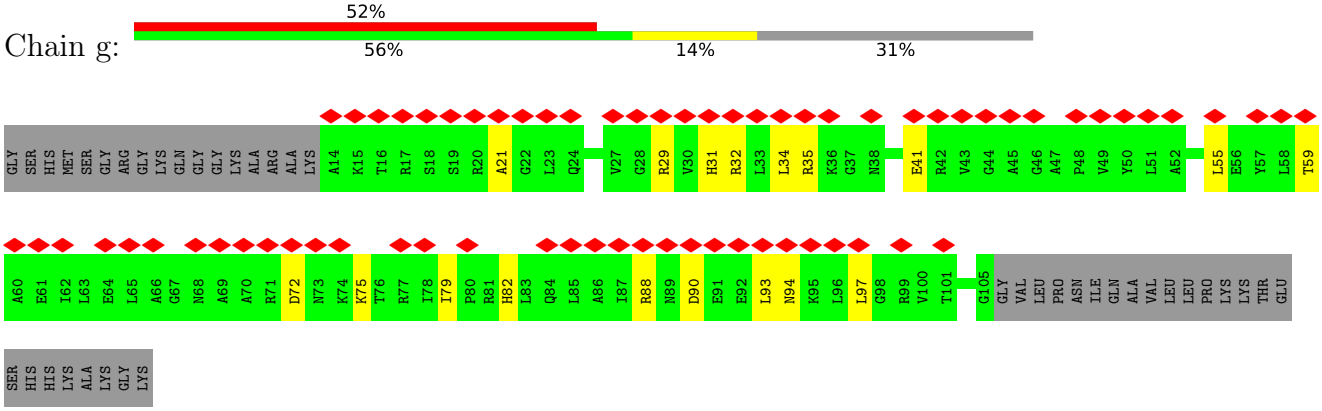
• Molecule 28: Histone H4

Chain f:



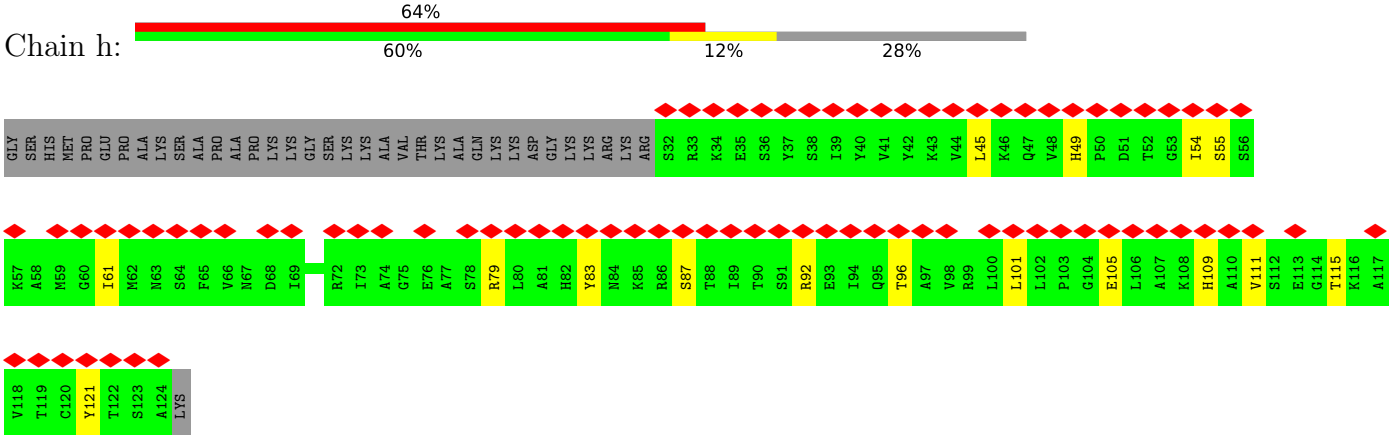
• Molecule 29: Histone H2A type 1-B/E

Chain g:

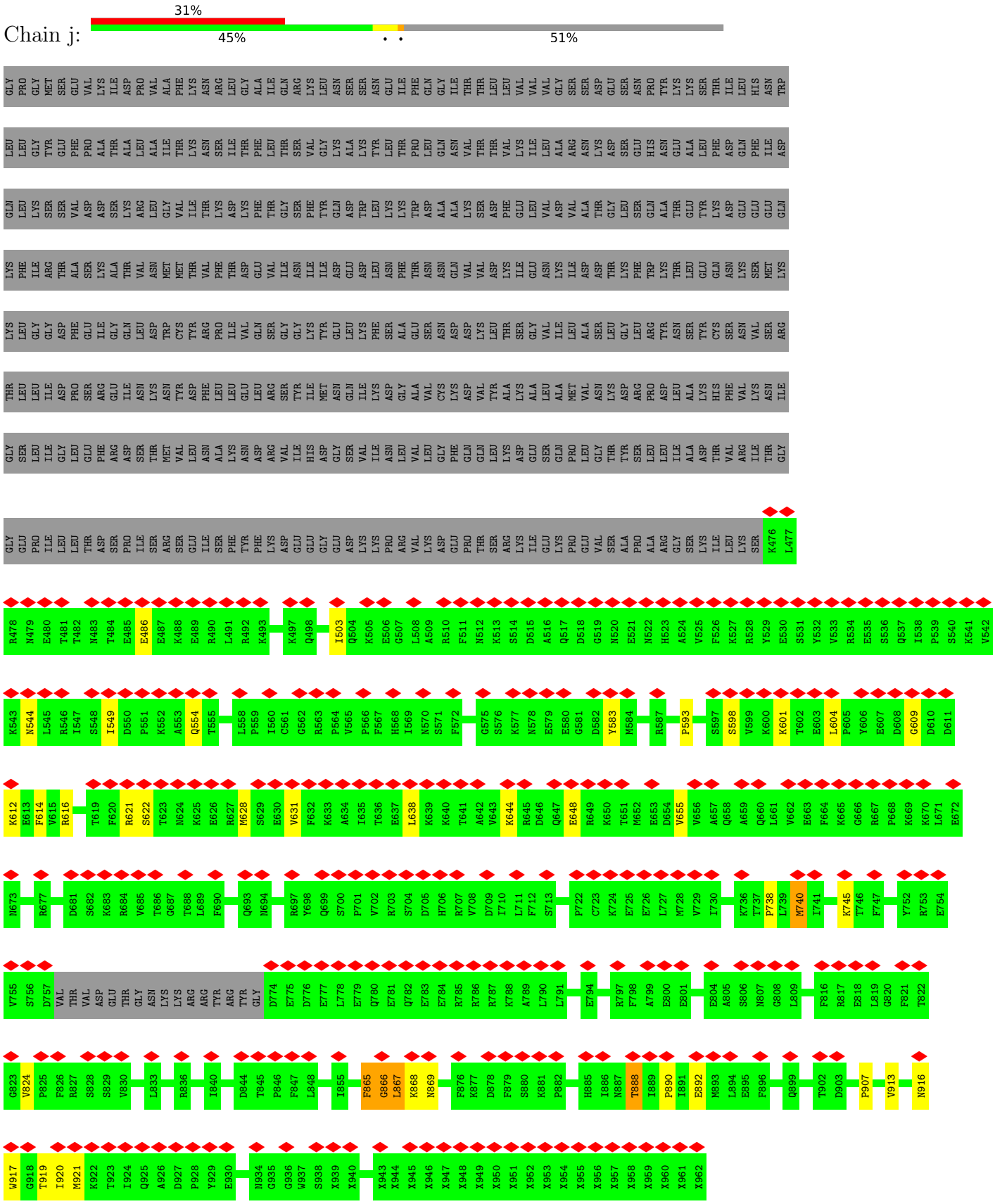


• Molecule 30: Histone H2B type 1-J

Chain h:

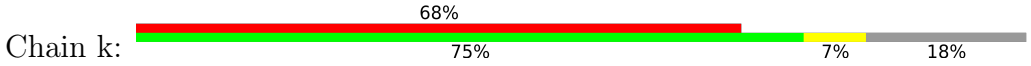


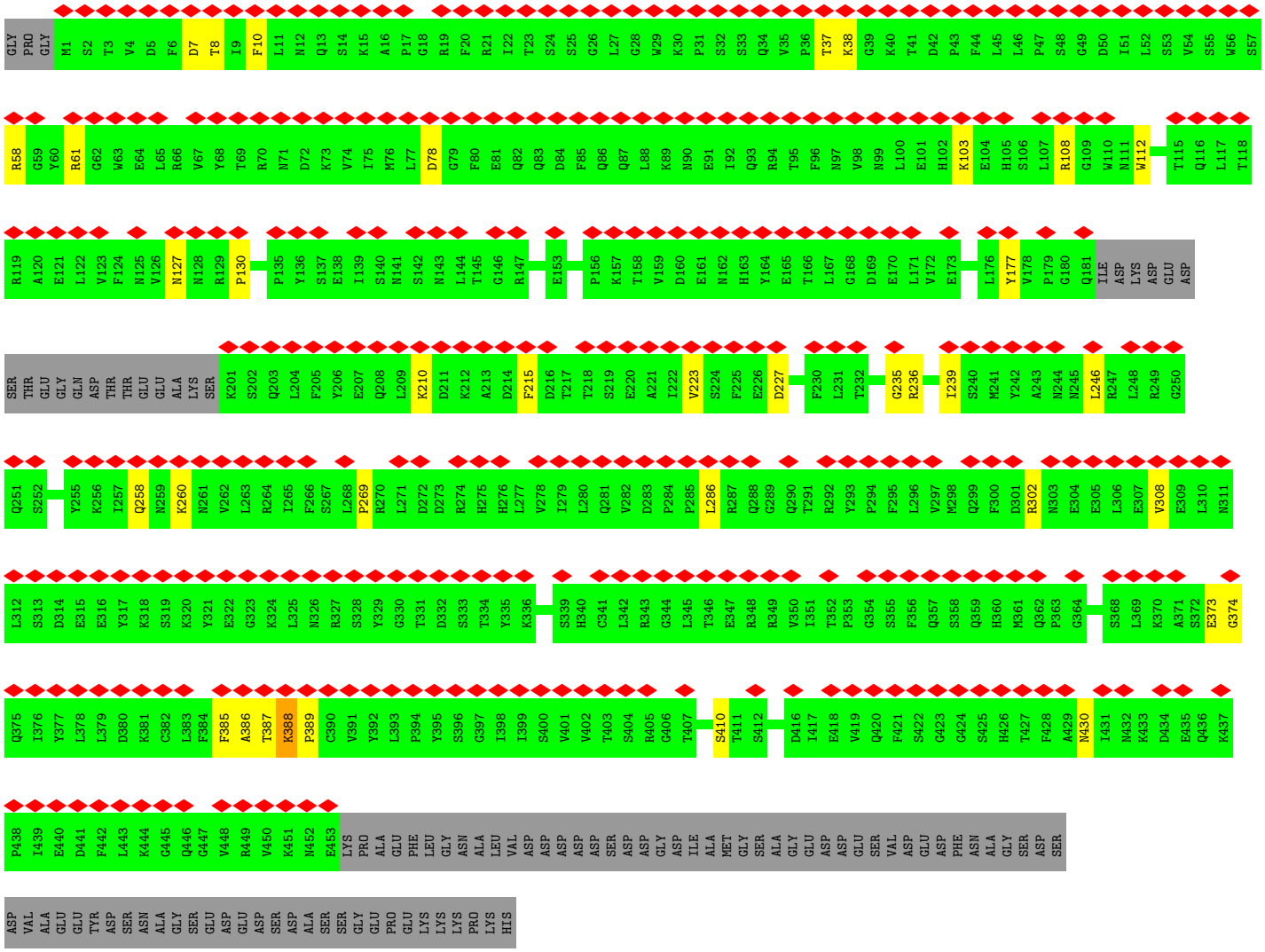
• Molecule 31: FACT complex subunit



• Molecule 32: FACT complex subunit POB3

Chain k:


68%
75%
7%
18%


GLY PRO GLY M1 S2 T3 V4 D5 F6 D7 T8 I9 F10 L11 N12 Q13 S14 K15 A16 P17 G18 R19 F20 R21 I22 T23 S24 S25 G26 L27 G28 W29 K30 P31 S32 S33 Q34 V35 P36 T37 K38 G39 K40 T41 D42 P43 F44 L45 L46 P47 S48 G49 D50 I51 L52 S53 V54 S55 W56 S57
R58 G59 Y60 R61 G62 W63 E64 L65 R66 V67 Y68 T69 R70 N71 D72 K73 V74 I75 M76 L77 D78 G79 F80 E81 Q82 Q83 D84 F85 Q86 Q87 L88 K89 N90 E91 I92 Q93 R94 T95 F96 N97 V98 N99 L100 E101 H102 K103 E104 H105 S106 L107 R108 G109 W110 N111 W112 T115 Q116 L117 T118
R119 A120 E121 L122 V123 F124 N125 V126 N127 N128 R129 P130 P135 Y136 S137 E138 I139 S140 N141 S142 N143 L144 T145 G146 R147 E153 P156 K157 T158 V159 D160 E161 N162 H163 Y164 E165 T166 L167 G168 D169 E170 L171 V172 E173 L176 Y177 V178 P179 G180 Q181 ILE ASP LYS ASP GLU ASP
SER THR GLU GLY GLN ASP THR THR GLU GLU ALA LYS SER K201 S202 Q203 L204 F205 Y206 E207 Q208 L209 K210 D211 K212 A213 D214 F215 D216 T217 T218 S219 E220 A221 I222 V223 S224 F225 E226 D227 F230 L231 T232 G235 R236 I239 S240 M241 Y242 A243 N244 N245 L246 R247 L248 R249 G250
Q251 S252 Y255 K256 I257 Q258 N259 K260 N261 V262 L263 R264 I265 F266 S267 L268 P269 R270 L271 D272 D273 R274 H275 H276 L277 V278 I279 L280 Q281 V282 D283 P284 P285 L286 R287 Q288 G289 Q290 T291 R292 Y293 P294 F295 L296 V297 M298 Q299 F300 D301 R302 N303 E304 E305 L306 E307 V308 E309 L310 N311
L312 S313 D314 E315 E316 Y317 K318 S319 K320 Y321 E322 G323 K324 L325 N326 R327 S328 Y329 G330 T331 D332 S333 T334 Y335 K336 S339 H340 C341 L342 R343 G344 L345 T346 E347 R348 R349 V350 I351 T352 P353 G354 S355 F356 Q357 S358 Q359 H360 M361 Q362 P363 G364 S368 L369 K370 A371 S372 E373 G374
Q375 I376 Y377 L378 L379 D380 K381 C382 L383 F384 F385 A386 T387 K388 P389 C390 V391 Y392 L393 P394 Y395 S396 G397 I398 I399 S400 V401 V402 T403 S404 R405 G406 T407 S410 T411 S412 D416 I417 E418 V419 Q420 F421 S422 G423 G424 S425 H426 T427 F428 A429 N430 I431 N432 K433 D434 E435 Q436 K437
P438 I439 E440 D441 F442 L443 K444 G445 Q446 G447 V448 R449 V450 K451 N452 E453 LYS PRO ALA GLU PHE LEU GLY ASN ALA LEU VAL ASP ASP ASP ASP SER ASP ASP GLY ASP ILE ALA MET GLY SER ALA GLY GLU ASP GLU SER VAL ASP GLU ASP PHE ASN ALA GLY SER ASP SER
ASP VAL ALA GLU GLU TYR ASP SER ASN ALA GLY SER GLU ASP GLU ASP SER ASP ALA SER SER GLY GLU PRO GLU LYS LYS LYS PRO LYS HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	29821	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 ($e^-/Å^2$)	58	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.147	Depositor
Minimum map value	-0.059	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.016	Depositor
Map size (Å)	398.25, 398.25, 398.25	wwPDB
Map dimensions	270, 270, 270	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.475, 1.475, 1.475	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.21	0/11267	0.43	0/15222
2	B	0.21	0/9464	0.43	0/12763
3	C	0.21	0/2139	0.41	0/2895
4	D	0.15	0/1361	0.33	0/1837
5	E	0.20	0/1773	0.44	0/2385
6	F	0.20	0/687	0.38	0/931
7	G	0.15	0/1354	0.33	0/1837
8	H	0.21	0/1070	0.38	0/1444
9	I	0.12	0/934	0.28	0/1257
10	J	0.20	0/563	0.41	0/753
11	K	0.21	0/953	0.41	0/1291
12	L	0.20	0/365	0.45	0/484
13	M	0.17	0/513	0.37	0/693
14	N	0.51	0/1732	0.92	0/2674
15	P	0.26	0/462	0.60	0/716
16	T	0.51	0/1977	0.80	0/3044
17	V	0.15	0/840	0.33	0/1140
18	W	0.18	0/4319	0.43	1/5838 (0.0%)
19	m	0.18	0/9847	0.38	0/13321
20	n	0.18	0/1132	0.38	0/1526
21	q	0.17	0/7689	0.34	0/10368
22	r	0.17	0/2169	0.35	0/2901
23	s	0.12	0/92	0.29	0/122
24	u	0.15	0/1740	0.31	0/2347
25	v	0.16	0/2944	0.33	0/3973
26	x	0.15	0/1716	0.31	0/2310
27	a	0.47	0/613	0.64	0/822
27	e	0.25	0/627	0.43	0/841
28	b	0.43	0/669	0.64	0/894
28	f	0.29	0/626	0.46	0/837
29	g	0.21	0/723	0.36	0/973
30	h	0.31	0/733	0.39	0/987

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\|>5$	RMSZ	$\#\|Z\|>5$
31	j	0.84	0/3748	1.16	0/5044
32	k	0.80	0/3613	1.12	0/4881
All	All	0.33	0/80454	0.54	1/109351 (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
16	T	0	1
31	j	0	1
32	k	0	1
All	All	0	6

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	W	435	LEU	N-CA-C	5.14	117.20	109.23

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
14	N	-21	DG	Sidechain
14	N	-6	DG	Sidechain
14	N	14	DT	Sidechain
16	T	-2	DC	Sidechain
31	j	616	ARG	Sidechain
32	k	58	ARG	Sidechain

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	11064	0	11090	61	0
2	B	9284	0	9282	61	0
3	C	2098	0	2057	10	0
4	D	1349	0	1345	5	0
5	E	1741	0	1754	11	0
6	F	677	0	693	3	0
7	G	1325	0	1342	10	0
8	H	1053	0	1050	4	0
9	I	917	0	864	10	0
10	J	554	0	573	1	0
11	K	932	0	944	11	0
12	L	359	0	358	1	0
13	M	505	0	495	3	0
14	N	1548	0	848	13	0
15	P	417	0	213	1	0
16	T	1758	0	953	13	0
17	V	824	0	795	11	0
18	W	4250	0	4296	55	0
19	m	9653	0	9500	64	0
20	n	1115	0	1186	16	0
21	q	7552	0	7545	43	0
22	r	2139	0	2155	18	0
23	s	91	0	98	2	0
24	u	1707	0	1676	23	0
25	v	2878	0	2873	26	0
26	x	1682	0	1731	8	0
27	a	606	0	639	20	0
27	e	620	0	650	13	0
28	b	662	0	709	14	0
28	f	619	0	659	12	0
29	g	715	0	755	13	0
30	h	722	0	737	13	0
31	j	3794	0	3700	34	0
32	k	3535	0	3467	32	0
33	A	2	0	0	0	0
33	B	1	0	0	0	0
33	C	1	0	0	0	0
33	I	2	0	0	0	0
33	J	1	0	0	0	0
33	L	1	0	0	0	0
33	M	1	0	0	0	0
33	V	1	0	0	0	0
34	A	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	78756	0	77032	508	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 3.

All (508) 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)
32:k:374:GLY:HA2	32:k:387:THR:HG21	1.71	0.72
1:A:445:PHE:CE2	1:A:471:LEU:HD21	2.24	0.72
31:j:919:THR:HG23	31:j:920:ILE:N	2.07	0.70
18:W:461:LEU:HD13	19:m:278:THR:HA	1.74	0.70
29:g:88:ARG:NH2	29:g:97:LEU:O	2.24	0.70
32:k:386:ALA:O	32:k:387:THR:HG23	1.93	0.69
32:k:374:GLY:CA	32:k:387:THR:HG21	2.23	0.69
18:W:218:ILE:CD1	20:n:289:MET:HE1	2.22	0.68
18:W:444:LEU:HG	19:m:284:PHE:CE1	2.28	0.68
2:B:1166:CYS:HB3	2:B:1185:CYS:SG	2.35	0.67
1:A:445:PHE:HE2	1:A:471:LEU:HD21	1.60	0.67
18:W:444:LEU:HD12	19:m:284:PHE:CD2	2.30	0.67
1:A:483:PHE:CD2	2:B:836:GLU:HB2	2.29	0.67
32:k:227:ASP:OD1	32:k:236:ARG:HG2	1.97	0.65
18:W:487:ILE:HD11	18:W:531:ARG:HB2	1.79	0.65
19:m:337:GLN:HG2	19:m:458:ARG:HH22	1.62	0.65
27:a:122:LYS:HD2	32:k:373:GLU:OE1	1.97	0.64
28:f:68:ASP:OD2	28:f:93:GLN:NE2	2.30	0.64
28:b:26:ILE:HG13	28:b:55:ARG:HD3	1.80	0.64
16:T:-1:DG:OP2	31:j:919:THR:HB	1.96	0.64
18:W:352:LEU:HD11	18:W:435:LEU:HD11	1.79	0.64
1:A:285:SER:HB2	1:A:290:ILE:HD11	1.80	0.63
28:b:39:ARG:HD2	31:j:913:VAL:HG13	1.80	0.63
19:m:473:ASN:HA	19:m:525:ARG:HH22	1.64	0.62
19:m:331:ARG:HH21	19:m:368:LYS:HB3	1.65	0.62
3:C:266:ARG:HH12	11:K:82:ARG:HH22	1.48	0.62
1:A:1211:MET:SD	1:A:1211:MET:N	2.73	0.61
18:W:444:LEU:HB2	19:m:284:PHE:CE2	2.35	0.61
27:a:69:ARG:HB3	28:b:25:ASN:HD22	1.65	0.61
1:A:831:LYS:NZ	1:A:1079:THR:O	2.34	0.60
2:B:1103:ILE:O	2:B:1122:ARG:NH1	2.34	0.60
31:j:824:VAL:HG23	31:j:888:THR:HG22	1.83	0.60
9:I:33:ASP:OD1	24:u:75:HIS:N	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
27:a:112:ILE:HG21	31:j:888:THR:HB	1.83	0.60
2:B:969:ARG:NH1	3:C:60:GLU:OE1	2.35	0.59
21:q:793:VAL:HG11	21:q:830:LEU:HG	1.83	0.59
21:q:922:ALA:O	21:q:926:ASN:ND2	2.35	0.59
14:N:5:DT:H2"	14:N:6:DT:C5	2.36	0.59
17:V:15:CYS:HB3	17:V:32:CYS:SG	2.42	0.59
16:T:-1:DG:OP1	31:j:919:THR:HA	2.03	0.59
2:B:73:LYS:HG2	2:B:125:THR:HG22	1.85	0.59
1:A:1262:MET:SD	1:A:1265:ARG:NH2	2.76	0.59
27:a:69:ARG:HB3	28:b:25:ASN:ND2	2.18	0.59
2:B:778:MET:HE3	2:B:794:ASN:HB3	1.84	0.58
17:V:57:LEU:HD11	17:V:81:LEU:HD22	1.85	0.58
18:W:327:ARG:HB3	18:W:436:ILE:HD12	1.84	0.58
21:q:169:ASP:OD1	21:q:185:LYS:NZ	2.35	0.58
21:q:253:ILE:HG12	21:q:297:LEU:HD21	1.84	0.58
16:T:-1:DG:OP2	31:j:919:THR:CB	2.52	0.58
20:n:206:SER:O	20:n:210:ASN:ND2	2.35	0.58
28:b:30:THR:C	28:b:32:PRO:HD2	2.28	0.58
31:j:919:THR:CG2	31:j:920:ILE:N	2.67	0.58
2:B:1176:LYS:HD2	18:W:598:LEU:HD23	1.86	0.58
7:G:27:ARG:NH1	7:G:54:ILE:O	2.36	0.58
19:m:672:VAL:O	19:m:720:GLN:NE2	2.37	0.58
2:B:436:ASN:ND2	24:u:264:LEU:HD22	2.19	0.58
8:H:48:PRO:O	8:H:145:ARG:NH1	2.37	0.57
32:k:103:LYS:HE2	32:k:130:PRO:HG3	1.86	0.57
31:j:655:VAL:HG11	31:j:740:MET:HG3	1.86	0.57
31:j:609:GLY:HA3	31:j:612:LYS:HD2	1.86	0.57
4:D:71:ARG:HE	4:D:92:VAL:HG13	1.70	0.57
22:r:269:ASP:HB3	22:r:349:LEU:HD21	1.85	0.57
2:B:815:ARG:HD2	25:v:135:SER:HB3	1.86	0.57
18:W:616:GLN:OE1	18:W:619:SER:OG	2.23	0.57
31:j:916:ASN:O	31:j:919:THR:HG22	2.04	0.57
2:B:436:ASN:HD22	24:u:264:LEU:HD22	1.69	0.57
10:J:1:MET:HA	10:J:55:LEU:HB2	1.86	0.57
18:W:218:ILE:HG13	20:n:289:MET:HE1	1.86	0.57
2:B:489:ARG:NH2	2:B:533:SER:O	2.37	0.56
18:W:444:LEU:HG	19:m:284:PHE:CZ	2.39	0.56
25:v:233:GLY:O	25:v:244:ASN:ND2	2.38	0.56
2:B:190:MET:SD	2:B:190:MET:N	2.77	0.56
32:k:386:ALA:O	32:k:387:THR:CG2	2.54	0.56
1:A:127:ARG:O	1:A:129:ARG:NH1	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:50:VAL:HG21	2:B:82:ILE:HD11	1.86	0.56
13:M:49:CYS:SG	13:M:52:CYS:HB2	2.45	0.56
14:N:-5:DG:N2	14:N:-4:DG:N2	2.53	0.56
19:m:1261:ASN:OD1	19:m:1264:ARG:NH2	2.39	0.56
2:B:879:ARG:HG3	15:P:-3:G:H8	1.70	0.56
8:H:59:LEU:HD21	8:H:122:MET:HE1	1.87	0.56
21:q:531:GLU:O	21:q:535:ASN:N	2.37	0.56
32:k:7:ASP:O	32:k:8:THR:OG1	2.24	0.56
1:A:1207:LYS:O	1:A:1277:ARG:NH2	2.39	0.56
9:I:73:LYS:NZ	9:I:112:ASP:OD2	2.39	0.56
25:v:267:TYR:HB3	25:v:297:TYR:HB3	1.87	0.56
32:k:108:ARG:CZ	32:k:127:ASN:HD22	2.19	0.56
24:u:121:PHE:HB3	24:u:153:ARG:HB3	1.86	0.56
16:T:-7:DG:C2	16:T:-6:DA:C2	2.94	0.55
1:A:473:LEU:HD23	2:B:836:GLU:HG3	1.88	0.55
1:A:1201:ARG:NH2	1:A:1235:ALA:O	2.39	0.55
2:B:421:ILE:HD11	2:B:441:VAL:HG22	1.89	0.55
21:q:569:ASN:O	21:q:603:LYS:NZ	2.36	0.55
21:q:793:VAL:HG13	21:q:826:ALA:HB1	1.87	0.55
22:r:200:ASP:HB3	22:r:319:VAL:HG11	1.88	0.55
5:E:126:VAL:HG11	5:E:131:ILE:HG12	1.88	0.55
9:I:20:LYS:O	9:I:23:GLN:NE2	2.39	0.55
22:r:490:VAL:HG22	22:r:495:ARG:HE	1.72	0.55
3:C:248:ILE:HG21	11:K:102:ASP:HB2	1.88	0.55
14:N:-14:DT:H2"	14:N:-13:DT:H72	1.89	0.55
19:m:1056:ARG:HB3	19:m:1076:MET:HB3	1.88	0.54
31:j:583:TYR:HB3	31:j:621:ARG:HB2	1.88	0.54
2:B:281:LEU:HD12	2:B:364:GLU:HB2	1.88	0.54
2:B:927:GLN:HB2	2:B:931:TYR:HB3	1.89	0.54
18:W:524:GLU:O	20:n:232:GLN:NE2	2.40	0.54
24:u:209:LEU:HB2	25:v:252:PHE:HB2	1.88	0.54
4:D:159:LEU:HD22	7:G:86:VAL:HG11	1.90	0.54
21:q:157:LYS:NZ	25:v:71:ASP:OD1	2.40	0.54
24:u:272:TYR:O	24:u:276:ARG:HG2	2.08	0.54
19:m:607:ILE:HG22	19:m:719:VAL:HG11	1.89	0.54
9:I:100:PHE:HE1	9:I:111:ARG:HE	1.56	0.54
26:x:292:TRP:HA	26:x:295:LYS:HE2	1.89	0.54
21:q:155:TYR:HB2	21:q:164:ALA:HB2	1.90	0.53
2:B:557:GLU:OE2	2:B:584:ARG:NH1	2.40	0.53
13:M:33:SER:HA	13:M:50:LYS:HE2	1.90	0.53
17:V:89:ARG:NH1	17:V:109:ASP:OD2	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:327:ARG:NH1	18:W:335:GLY:O	2.38	0.53
24:u:199:LEU:HD11	25:v:211:PHE:HB3	1.91	0.53
27:e:109:LEU:HD22	32:k:430:ASN:CG	2.33	0.53
14:N:5:DT:H72	31:j:598:SER:HA	1.89	0.53
30:h:105:GLU:HG3	30:h:109:HIS:CD2	2.44	0.53
19:m:1083:MET:HE1	19:m:1131:LEU:HD23	1.91	0.53
1:A:40:ILE:HG23	1:A:54:ASN:HD22	1.72	0.52
2:B:235:LEU:HD23	2:B:242:ILE:HG13	1.91	0.52
2:B:393:HIS:NE2	2:B:696:GLU:OE2	2.42	0.52
2:B:906:SER:OG	18:W:781:GLU:OE1	2.27	0.52
9:I:45:ARG:NH2	9:I:47:GLU:OE2	2.42	0.52
19:m:532:VAL:HG22	19:m:565:MET:HE2	1.91	0.52
24:u:145:ILE:O	24:u:149:THR:OG1	2.21	0.52
1:A:976:ASP:O	1:A:979:LYS:NZ	2.42	0.52
7:G:6:ASP:OD1	7:G:75:ARG:NH1	2.43	0.52
9:I:14:LEU:HB3	9:I:27:TYR:HB3	1.92	0.52
19:m:236:GLU:OE2	20:n:252:ARG:NH2	2.43	0.52
21:q:59:ALA:HB1	21:q:63:LEU:HD12	1.91	0.52
18:W:232:ARG:HH12	18:W:235:LYS:HE3	1.73	0.52
19:m:1426:LEU:HD13	19:m:1469:ARG:HH21	1.74	0.52
14:N:12:DG:C2	16:T:-11:DG:C2	2.97	0.52
19:m:725:GLU:OE2	19:m:728:ARG:NH2	2.36	0.52
21:q:766:MET:HG3	21:q:770:LYS:HE3	1.92	0.52
26:x:157:ARG:HB3	26:x:161:PRO:HB3	1.91	0.52
32:k:385:PHE:CZ	32:k:387:THR:OG1	2.62	0.52
21:q:215:ASP:OD1	21:q:217:ARG:NH1	2.43	0.52
21:q:578:GLN:NE2	21:q:582:ASP:OD1	2.44	0.52
27:a:112:ILE:HD13	31:j:888:THR:HB	1.90	0.52
1:A:999:LEU:O	1:A:1013:GLN:NE2	2.38	0.51
1:A:1423:ASP:OD1	1:A:1423:ASP:N	2.41	0.51
21:q:830:LEU:HD22	21:q:846:LEU:HB3	1.91	0.51
5:E:60:LEU:O	21:q:915:ARG:NH1	2.39	0.51
21:q:357:LYS:NZ	21:q:361:ASP:OD1	2.43	0.51
21:q:451:ARG:NH1	25:v:35:GLU:OE1	2.43	0.51
21:q:239:ASN:HA	21:q:242:LYS:HD2	1.92	0.51
19:m:1033:ARG:HH12	19:m:1087:ARG:HH12	1.58	0.51
2:B:10:ASP:HB3	2:B:649:LYS:HG3	1.93	0.51
11:K:25:SER:O	26:x:307:GLN:NE2	2.41	0.51
24:u:114:LEU:HD11	24:u:150:VAL:HG23	1.92	0.51
29:g:55:LEU:O	29:g:59:THR:HG23	2.11	0.51
1:A:1124:ARG:NH2	1:A:1304:GLU:OE2	2.40	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:229:VAL:HG21	18:W:286:LEU:HD11	1.92	0.51
19:m:1200:PRO:O	19:m:1203:ARG:NH1	2.43	0.51
1:A:447:ARG:HB2	1:A:488:MET:HE3	1.93	0.50
28:f:89:ALA:O	28:f:93:GLN:HG2	2.11	0.50
19:m:1002:ARG:HH11	19:m:1052:TYR:HH	1.58	0.50
1:A:1195:LEU:HB2	1:A:1263:LEU:HD21	1.93	0.50
18:W:218:ILE:CG1	20:n:289:MET:HE1	2.41	0.50
20:n:207:ILE:HG23	20:n:212:LEU:HB3	1.92	0.50
26:x:226:LYS:HG3	26:x:250:ILE:HG22	1.93	0.50
18:W:356:PRO:HG2	18:W:394:PHE:HB2	1.92	0.50
18:W:666:GLU:HG2	18:W:705:VAL:HG12	1.92	0.50
20:n:260:MET:HG3	20:n:284:TRP:HZ3	1.77	0.50
21:q:250:ASN:HA	21:q:253:ILE:HD12	1.93	0.50
28:b:98:TYR:HB3	30:h:61:ILE:HG23	1.94	0.50
1:A:286:PRO:HG2	1:A:289:ILE:HD12	1.93	0.50
19:m:1191:ASN:OD1	19:m:1193:GLN:NE2	2.42	0.50
19:m:1255:TRP:NE1	19:m:1260:GLU:OE1	2.42	0.50
27:a:61:LEU:HD22	28:b:36:ARG:HD2	1.92	0.50
18:W:666:GLU:HA	18:W:705:VAL:HA	1.94	0.50
27:e:129:ARG:HH11	27:e:129:ARG:HG2	1.77	0.50
2:B:245:MET:HE1	2:B:371:LEU:HD21	1.93	0.49
17:V:9:GLU:HA	17:V:20:PRO:HA	1.94	0.49
18:W:328:VAL:HA	18:W:435:LEU:HD23	1.94	0.49
1:A:1190:GLN:HA	1:A:1245:ILE:HA	1.95	0.49
18:W:704:ARG:NH1	19:m:632:GLU:OE2	2.46	0.49
20:n:163:LEU:HD11	20:n:194:VAL:HG22	1.94	0.49
20:n:216:VAL:HG13	20:n:237:LEU:HD13	1.94	0.49
24:u:191:THR:HG22	24:u:219:VAL:HG22	1.95	0.49
27:a:63:ARG:HB3	27:a:66:PRO:HD2	1.95	0.49
27:a:122:LYS:HB2	32:k:373:GLU:OE1	2.11	0.49
1:A:9:ALA:O	2:B:1193:GLN:NE2	2.44	0.49
14:N:-5:DG:N2	14:N:-4:DG:C2	2.80	0.49
18:W:327:ARG:NH2	18:W:441:ASN:O	2.46	0.49
18:W:351:ARG:HA	18:W:429:THR:HA	1.94	0.49
26:x:311:GLY:HA3	26:x:330:VAL:HG12	1.95	0.49
28:f:75:HIS:O	30:h:92:ARG:NH1	2.45	0.49
18:W:640:LYS:NZ	18:W:641:LEU:O	2.46	0.49
19:m:1041:LEU:HD11	19:m:1081:TYR:HD2	1.77	0.49
17:V:10:ARG:HA	17:V:52:SER:HA	1.95	0.49
19:m:1425:LYS:HE3	19:m:1428:PRO:HA	1.94	0.49
32:k:108:ARG:NH2	32:k:127:ASN:HD22	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:336:ILE:O	2:B:341:ARG:NH1	2.46	0.49
3:C:38:ALA:HA	3:C:164:ALA:HB3	1.95	0.49
14:N:-2:DC:OP1	28:b:32:PRO:HD3	2.12	0.49
21:q:31:LYS:HB2	21:q:57:GLU:HA	1.94	0.49
25:v:210:VAL:HG13	25:v:334:VAL:HG21	1.95	0.49
2:B:248:LYS:NZ	2:B:264:THR:OG1	2.46	0.48
18:W:317:ASP:O	18:W:318:VAL:C	2.55	0.48
32:k:239:ILE:CG2	32:k:246:LEU:HD11	2.43	0.48
2:B:613:ARG:HH21	9:I:62:ILE:HD11	1.76	0.48
21:q:479:TYR:HD1	25:v:30:LEU:HB3	1.78	0.48
21:q:390:LEU:HB3	21:q:409:LEU:HD21	1.96	0.48
2:B:601:ALA:HA	24:u:239:SER:HB3	1.95	0.48
27:e:61:LEU:HD12	28:f:37:LEU:HD23	1.95	0.48
1:A:106:ILE:HD13	1:A:215:ILE:HD11	1.96	0.48
2:B:279:ARG:NH2	2:B:286:ASP:OD1	2.46	0.48
19:m:1172:VAL:HA	19:m:1182:VAL:HG12	1.93	0.48
27:a:105:GLU:HB3	31:j:868:LYS:HD2	1.94	0.48
30:h:45:LEU:HD22	30:h:54:ILE:HG13	1.96	0.48
2:B:268:VAL:HG11	2:B:272:ILE:HD11	1.95	0.48
11:K:14:ASP:N	11:K:14:ASP:OD1	2.47	0.48
18:W:465:ALA:HA	18:W:468:LEU:HD12	1.95	0.48
29:g:79:ILE:HG12	29:g:82:HIS:CE1	2.48	0.48
31:j:869:ASN:ND2	31:j:888:THR:OG1	2.45	0.48
19:m:998:ASN:HD22	19:m:999:LEU:N	2.12	0.48
28:f:93:GLN:HB2	28:f:95:ARG:HG2	1.95	0.48
1:A:363:ASP:OD1	1:A:363:ASP:N	2.45	0.48
19:m:1269:ASP:OD1	19:m:1272:ARG:NH1	2.46	0.48
24:u:173:TRP:NE1	24:u:179:SER:OG	2.37	0.48
1:A:599:LEU:O	8:H:121:LEU:HD12	2.13	0.47
19:m:882:ARG:HH22	19:m:1156:ARG:HH21	1.62	0.47
24:u:80:TYR:CZ	25:v:356:ASN:HB2	2.49	0.47
29:g:29:ARG:HG3	29:g:32:ARG:HH21	1.79	0.47
1:A:204:THR:OG1	1:A:207:GLU:OE1	2.31	0.47
21:q:65:LEU:HD13	25:v:81:ILE:HG12	1.95	0.47
21:q:559:ARG:NH2	25:v:24:PRO:O	2.47	0.47
22:r:223:VAL:HG22	22:r:325:GLN:HG2	1.95	0.47
31:j:549:ILE:HD11	31:j:631:VAL:HG13	1.95	0.47
1:A:1199:LEU:HD13	1:A:1204:MET:HG3	1.96	0.47
18:W:494:LEU:HD21	20:n:183:PRO:HG3	1.96	0.47
21:q:72:VAL:HG21	25:v:75:LEU:HD13	1.97	0.47
2:B:550:PHE:HB3	2:B:593:MET:HE1	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:g:29:ARG:HG3	29:g:32:ARG:NH2	2.29	0.47
29:g:41:GLU:HB2	30:h:87:SER:HB2	1.95	0.47
1:A:1227:PHE:HB2	1:A:1245:ILE:HD11	1.97	0.47
5:E:49:MET:SD	5:E:49:MET:N	2.76	0.47
22:r:493:ASN:HB2	22:r:502:ILE:HD11	1.96	0.47
24:u:108:VAL:HG22	24:u:219:VAL:HB	1.96	0.47
27:e:106:ASP:OD2	27:e:131:ARG:NH2	2.42	0.47
30:h:92:ARG:O	30:h:96:THR:HG23	2.15	0.47
19:m:780:LEU:HD12	19:m:900:LEU:HB3	1.97	0.47
27:a:93:GLN:O	27:a:97:GLU:HG3	2.15	0.47
31:j:644:LYS:HE2	31:j:648:GLU:OE2	2.15	0.47
32:k:374:GLY:HA3	32:k:387:THR:HG21	1.96	0.47
1:A:1450:GLU:OE2	7:G:23:ASN:ND2	2.47	0.47
21:q:708:GLN:OE1	21:q:739:LYS:NZ	2.48	0.47
17:V:78:GLN:O	17:V:82:TYR:OH	2.23	0.46
31:j:919:THR:CG2	31:j:920:ILE:H	2.28	0.46
19:m:1279:ARG:NH1	19:m:1315:SER:O	2.48	0.46
25:v:263:TRP:HE1	25:v:356:ASN:HD21	1.61	0.46
18:W:326:VAL:HA	18:W:440:ILE:HD13	1.97	0.46
11:K:29:ASN:ND2	11:K:78:GLU:O	2.49	0.46
19:m:625:GLY:O	19:m:629:ILE:HG12	2.14	0.46
27:a:113:HIS:CG	27:e:126:LEU:HD22	2.51	0.46
1:A:261:ASP:OD1	1:A:262:ASP:N	2.48	0.46
6:F:110:ASP:OD1	6:F:110:ASP:N	2.37	0.46
29:g:90:ASP:HB3	29:g:93:LEU:HB2	1.98	0.46
1:A:10:PRO:HG2	2:B:1192:TYR:HD1	1.80	0.46
1:A:215:ILE:O	1:A:231:ARG:NH2	2.47	0.46
1:A:870:GLY:C	1:A:872:ASP:H	2.24	0.46
1:A:1452:LEU:HD22	6:F:131:PRO:HB3	1.98	0.46
11:K:45:LEU:HG	11:K:94:ILE:HD13	1.98	0.46
22:r:211:MET:HB3	22:r:286:LEU:HD23	1.97	0.46
24:u:97:HIS:NE2	25:v:203:ASP:OD2	2.47	0.46
7:G:160:ILE:HD12	18:W:553:LEU:HD12	1.97	0.46
27:e:73:GLU:OE1	28:f:25:ASN:HB2	2.16	0.46
1:A:807:ARG:NH1	2:B:724:LYS:O	2.43	0.45
5:E:34:MET:HE2	5:E:34:MET:HB2	1.80	0.45
7:G:151:ARG:HB3	7:G:158:TYR:HB2	1.98	0.45
17:V:58:VAL:N	17:V:82:TYR:O	2.45	0.45
17:V:66:SER:HB2	18:W:260:TYR:HB3	1.98	0.45
21:q:210:PRO:O	21:q:217:ARG:NH2	2.39	0.45
28:b:38:ALA:HB1	28:b:43:VAL:HB	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:k:385:PHE:CE2	32:k:387:THR:OG1	2.69	0.45
16:T:7:DC:OP2	27:a:63:ARG:HB2	2.16	0.45
18:W:215:ARG:NH2	19:m:234:TYR:CE1	2.85	0.45
22:r:276:PHE:HB2	22:r:279:GLN:HB2	1.98	0.45
1:A:864:ILE:HD12	5:E:169:LEU:HD11	1.99	0.45
2:B:86:ARG:NH2	22:r:369:GLU:OE1	2.50	0.45
19:m:1104:ILE:HD12	23:s:456:PRO:HB2	1.98	0.45
19:m:1425:LYS:NZ	19:m:1430:SER:O	2.41	0.45
28:f:75:HIS:HD2	30:h:96:THR:HG21	1.81	0.45
32:k:386:ALA:C	32:k:387:THR:HG23	2.41	0.45
11:K:99:LYS:HE2	11:K:99:LYS:HB2	1.73	0.45
13:M:46:LEU:HD11	13:M:55:SER:HB3	1.99	0.45
18:W:215:ARG:NH1	19:m:234:TYR:CE1	2.84	0.45
18:W:546:LYS:NZ	19:m:291:GLU:OE1	2.48	0.45
19:m:984:LYS:HE2	19:m:1015:VAL:HG21	1.99	0.45
21:q:189:LEU:HD22	21:q:194:LYS:HD2	1.98	0.45
28:f:92:ARG:NH2	30:h:101:LEU:HD13	2.32	0.45
12:L:49:ARG:HD3	22:r:339:VAL:HG11	1.98	0.45
19:m:1002:ARG:NH1	19:m:1052:TYR:OH	2.43	0.45
18:W:638:TYR:CZ	19:m:882:ARG:HG3	2.52	0.45
18:W:527:THR:HA	18:W:530:LEU:HD12	1.99	0.45
21:q:320:LEU:HD13	22:r:514:LEU:HD11	1.99	0.45
25:v:258:ASN:OD1	25:v:261:ASN:N	2.44	0.45
32:k:286:LEU:HD23	32:k:286:LEU:HA	1.84	0.45
3:C:15:ASP:OD1	3:C:15:ASP:N	2.44	0.45
19:m:527:ASP:OD1	19:m:528:ALA:N	2.47	0.45
28:f:64:ASN:HA	28:f:67:ARG:NH1	2.32	0.45
1:A:835:THR:HG21	1:A:1079:THR:HA	1.99	0.45
18:W:444:LEU:HD12	19:m:284:PHE:CG	2.52	0.45
31:j:503:ILE:CD1	31:j:907:PRO:HG3	2.47	0.45
1:A:948:VAL:O	5:E:200:ARG:NH1	2.50	0.44
18:W:751:THR:HG23	18:W:798:ILE:HG12	1.99	0.44
21:q:737:LEU:O	21:q:742:ASN:N	2.47	0.44
32:k:10:PHE:HB2	32:k:78:ASP:OD1	2.16	0.44
2:B:498:ASP:HB3	14:N:42:DA:C4	2.53	0.44
14:N:56:DG:C2	16:T:-55:DG:C2	3.05	0.44
19:m:992:ILE:HG22	19:m:997:SER:HA	1.99	0.44
27:a:83:ARG:HB2	28:b:80:THR:HG23	1.98	0.44
1:A:466:TYR:HB2	1:A:470:ARG:NH2	2.32	0.44
5:E:21:MET:HE2	5:E:186:TYR:HA	2.00	0.44
5:E:89:ILE:HD13	5:E:118:SER:HB2	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:628:LYS:HE3	19:m:661:GLN:HE22	1.82	0.44
22:r:366:GLU:HG2	24:u:252:VAL:HG22	1.99	0.44
1:A:231:ARG:HB3	1:A:234:TRP:CD2	2.53	0.44
1:A:599:LEU:HD12	1:A:599:LEU:HA	1.73	0.44
4:D:139:PRO:HA	4:D:142:ILE:HD12	1.99	0.44
19:m:1062:ALA:HB2	19:m:1103:LEU:HD11	1.99	0.44
28:b:40:ARG:O	31:j:867:LEU:HD21	2.17	0.44
2:B:588:MET:HE3	2:B:588:MET:HB3	1.88	0.44
16:T:17:DA:H5"	27:a:85:GLN:HG2	1.99	0.44
31:j:738:PRO:CG	31:j:745:LYS:HE2	2.48	0.44
1:A:41:MET:HG2	1:A:44:SER:HA	1.98	0.44
2:B:273:PRO:HG2	2:B:276:ILE:HD12	2.00	0.44
19:m:712:LEU:HA	19:m:715:LEU:HB2	1.98	0.44
24:u:90:LEU:HB2	25:v:362:MET:HE1	1.99	0.44
31:j:554:GLN:HA	31:j:638:LEU:HD21	1.99	0.44
32:k:210:LYS:HA	32:k:215:PHE:HD2	1.82	0.44
1:A:134:ARG:HH21	1:A:224:GLY:HA2	1.82	0.44
2:B:284:VAL:N	2:B:285:PRO:HD2	2.32	0.44
4:D:136:VAL:O	4:D:166:LYS:NZ	2.50	0.44
19:m:1064:ASP:OD1	23:s:457:LYS:NZ	2.46	0.44
19:m:1365:GLU:O	19:m:1369:ASN:ND2	2.49	0.44
21:q:568:SER:O	21:q:571:ASN:ND2	2.50	0.44
25:v:312:LYS:HB3	25:v:315:GLU:HG2	1.99	0.44
31:j:622:SER:CB	31:j:628:MET:HE2	2.48	0.44
1:A:1343:GLY:O	1:A:1347:THR:OG1	2.29	0.44
3:C:179:GLU:OE2	3:C:204:SER:OG	2.36	0.44
17:V:67:TRP:NE1	18:W:217:LEU:O	2.51	0.44
25:v:262:LYS:HD3	25:v:305:GLN:HE21	1.81	0.44
18:W:534:PHE:HB3	18:W:554:ILE:HD13	2.00	0.43
19:m:770:PHE:HB3	19:m:779:VAL:HG22	2.00	0.43
21:q:641:ALA:HB1	21:q:655:LYS:HG3	2.00	0.43
25:v:34:ILE:O	25:v:40:GLN:NE2	2.38	0.43
29:g:72:ASP:OD1	31:j:486:GLU:OE2	2.36	0.43
31:j:824:VAL:HG23	31:j:888:THR:CG2	2.49	0.43
1:A:1389:ARG:NH2	16:T:-44:DT:O2	2.50	0.43
19:m:1426:LEU:HD21	19:m:1465:MET:HE2	1.99	0.43
2:B:650:GLU:OE1	2:B:653:ARG:NH2	2.49	0.43
27:e:60:LEU:HD22	27:e:93:GLN:HG2	2.00	0.43
1:A:465:PRO:O	1:A:470:ARG:NH2	2.51	0.43
1:A:958:LEU:HD13	1:A:1023:LEU:HD22	2.01	0.43
2:B:547:ILE:HG21	2:B:619:ILE:HG21	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:17:ASN:OD1	8:H:24:SER:OG	2.31	0.43
21:q:520:SER:O	21:q:524:HIS:ND1	2.48	0.43
21:q:617:ASP:OD1	21:q:621:ASN:ND2	2.51	0.43
22:r:230:ARG:NH1	22:r:292:SER:OG	2.44	0.43
22:r:245:VAL:HG23	22:r:298:GLU:HG2	2.01	0.43
27:a:87:ALA:HB1	28:b:100:PHE:CD1	2.54	0.43
31:j:865:PHE:O	31:j:866:GLY:C	2.61	0.43
7:G:144:ARG:HB2	7:G:171:ILE:HD13	1.99	0.43
18:W:472:ALA:O	18:W:476:VAL:HG23	2.18	0.43
9:I:23:GLN:O	9:I:24:ARG:NE	2.51	0.43
17:V:59:ALA:HB1	18:W:244:LEU:HD13	2.01	0.43
18:W:508:SER:HA	18:W:524:GLU:HA	1.99	0.43
19:m:242:GLY:HA3	20:n:258:LYS:HG2	2.00	0.43
19:m:1205:ASP:OD1	19:m:1207:ARG:NE	2.48	0.43
25:v:104:PRO:HA	25:v:107:ARG:HD3	2.00	0.43
26:x:222:MET:HE3	26:x:222:MET:HB3	1.84	0.43
29:g:88:ARG:NE	29:g:94:ASN:OD1	2.46	0.43
30:h:111:VAL:O	30:h:115:THR:HG23	2.19	0.43
31:j:869:ASN:OD1	31:j:890:PRO:HA	2.18	0.43
1:A:188:LYS:HE3	1:A:199:GLU:HB2	2.01	0.43
14:N:-12:DT:OP1	27:a:72:ARG:NH2	2.52	0.43
28:b:32:PRO:O	28:b:36:ARG:HG3	2.18	0.43
32:k:223:VAL:HG23	32:k:308:VAL:HG11	2.01	0.43
1:A:1448:ILE:HD11	1:A:1453:LEU:HD11	2.01	0.43
30:h:54:ILE:HG22	30:h:55:SER:O	2.18	0.43
1:A:1287:MET:HE3	1:A:1287:MET:HB2	1.96	0.43
11:K:55:ASP:OD1	11:K:55:ASP:N	2.41	0.43
27:a:65:LEU:HG	27:a:69:ARG:NH1	2.34	0.43
27:e:135:ALA:HB3	31:j:892:GLU:OE2	2.19	0.43
29:g:31:HIS:CD2	29:g:35:ARG:HH12	2.37	0.43
1:A:547:VAL:HG22	1:A:578:LEU:HD21	2.01	0.42
18:W:344:LEU:HD12	18:W:349:GLU:HB2	2.01	0.42
1:A:327:ARG:HG3	1:A:1409:VAL:HG21	2.01	0.42
2:B:788:ARG:O	2:B:967:ARG:NH1	2.52	0.42
7:G:30:LEU:HD22	7:G:72:VAL:HG11	2.00	0.42
18:W:315:SER:O	18:W:316:SER:C	2.61	0.42
24:u:200:VAL:HA	24:u:211:THR:HA	2.01	0.42
26:x:301:ASP:OD1	26:x:303:GLN:NE2	2.53	0.42
19:m:545:ASN:ND2	19:m:553:HIS:O	2.53	0.42
21:q:155:TYR:HB3	21:q:160:ARG:HB2	2.02	0.42
22:r:277:PRO:HB2	22:r:305:GLU:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:u:208:ILE:HG22	25:v:253:LYS:HG3	2.00	0.42
2:B:860:MET:HE3	2:B:860:MET:HB3	1.84	0.42
18:W:752:LEU:HD23	18:W:770:VAL:HG12	2.00	0.42
20:n:217:ARG:HG3	20:n:259:VAL:HG21	2.02	0.42
30:h:79:ARG:HG2	30:h:83:TYR:CE2	2.54	0.42
2:B:83:TYR:HB2	2:B:116:TYR:HB2	2.01	0.42
2:B:928:ARG:NH2	19:m:775:ARG:O	2.52	0.42
1:A:983:LEU:HD13	1:A:1041:ARG:HA	2.01	0.42
9:I:62:ILE:HD12	9:I:62:ILE:HA	1.93	0.42
19:m:1325:ALA:HB3	19:m:1328:LEU:HB3	2.02	0.42
21:q:162:ASP:OD1	21:q:192:ARG:NH2	2.51	0.42
2:B:81:LYS:NZ	24:u:247:TYR:O	2.43	0.42
2:B:299:ASP:OD1	2:B:299:ASP:N	2.52	0.42
18:W:334:LYS:HB3	18:W:388:ARG:HH12	1.84	0.42
19:m:992:ILE:HA	19:m:995:ILE:HG12	2.02	0.42
21:q:766:MET:HE1	21:q:799:ILE:HG23	2.02	0.42
27:e:82:LEU:HD23	27:e:82:LEU:HA	1.78	0.42
27:e:109:LEU:CD2	32:k:430:ASN:OD1	2.68	0.42
2:B:607:SER:HB2	2:B:620:PHE:HB2	2.02	0.42
17:V:63:ASN:HB3	17:V:75:ASP:HA	2.01	0.42
28:f:51:TYR:O	28:f:55:ARG:HG3	2.20	0.42
1:A:203:LEU:HB3	1:A:208:ILE:HD11	2.01	0.42
2:B:632:ILE:HD11	2:B:688:GLU:HB3	2.01	0.42
2:B:830:TYR:CZ	2:B:1000:PRO:HD3	2.55	0.42
3:C:79:MET:HE2	3:C:79:MET:HB3	1.87	0.42
18:W:336:ASP:OD2	18:W:357:ARG:NE	2.47	0.42
18:W:461:LEU:HD12	19:m:278:THR:HG23	2.01	0.42
19:m:380:GLU:HB3	19:m:978:CYS:SG	2.60	0.42
27:a:73:GLU:OE1	28:b:25:ASN:HB2	2.20	0.42
28:f:46:ILE:HG22	28:f:47:SER:O	2.20	0.42
21:q:9:TYR:OH	25:v:106:ASP:OD2	2.28	0.41
21:q:737:LEU:HD12	21:q:741:SER:HB2	2.01	0.41
21:q:41:PHE:CG	21:q:70:VAL:HG11	2.54	0.41
22:r:244:LYS:NZ	22:r:305:GLU:OE2	2.46	0.41
29:g:21:ALA:HB2	30:h:121:TYR:HB2	2.02	0.41
29:g:31:HIS:CE1	29:g:35:ARG:HH12	2.37	0.41
31:j:593:PRO:HG2	32:k:177:TYR:CE2	2.56	0.41
1:A:253:MET:SD	16:T:-31:DA:H2"	2.60	0.41
5:E:81:PHE:HE1	5:E:110:ILE:HD13	1.84	0.41
14:N:4:DG:H4'	31:j:601:LYS:HE2	2.03	0.41
21:q:780:TYR:O	21:q:784:LYS:N	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:u:268:GLU:HA	24:u:271:ARG:HG2	2.03	0.41
1:A:1412:LEU:HD13	2:B:1207:LEU:HD21	2.02	0.41
2:B:957:ASN:OD1	2:B:961:LEU:N	2.53	0.41
7:G:108:VAL:HG22	7:G:159:ALA:HB3	2.02	0.41
16:T:-6:DA:H5"	32:k:235:GLY:HA2	2.02	0.41
18:W:551:THR:HG21	18:W:586:SER:HA	2.03	0.41
22:r:263:SER:OG	22:r:264:LYS:N	2.53	0.41
2:B:592:THR:HA	24:u:226:PHE:HZ	1.86	0.41
21:q:710:LEU:HD13	21:q:740:PHE:HB2	2.01	0.41
28:f:38:ALA:HB1	28:f:43:VAL:HB	2.02	0.41
30:h:45:LEU:O	30:h:49:HIS:N	2.34	0.41
1:A:363:ASP:HB3	1:A:509:PRO:HD3	2.02	0.41
1:A:823:GLU:OE2	2:B:506:GLN:NE2	2.53	0.41
5:E:27:TYR:HA	5:E:63:PRO:HA	2.03	0.41
9:I:17:LYS:N	9:I:26:LEU:O	2.50	0.41
18:W:648:GLN:NE2	18:W:679:VAL:H	2.18	0.41
27:e:98:ALA:HA	32:k:410:SER:HB2	2.02	0.41
11:K:65:HIS:HB3	11:K:68:PHE:HD2	1.86	0.41
27:a:65:LEU:HB3	27:a:66:PRO:HD3	2.03	0.41
31:j:604:LEU:HD23	31:j:604:LEU:HA	1.88	0.41
32:k:258:GLN:OE1	32:k:260:LYS:HE2	2.20	0.41
2:B:318:ASP:HB3	2:B:321:VAL:HG22	2.02	0.41
3:C:50:ILE:HG12	3:C:155:ILE:HG22	2.03	0.41
14:N:-13:DT:H2'	14:N:-12:DT:H71	2.03	0.41
14:N:8:DG:C2	16:T:-7:DG:N2	2.88	0.41
19:m:449:THR:HG21	19:m:543:ARG:HD2	2.03	0.41
19:m:1001:ASN:OD1	19:m:1002:ARG:N	2.54	0.41
21:q:710:LEU:HD11	21:q:748:LEU:HD11	2.03	0.41
22:r:206:PHE:H	22:r:229:LEU:HD21	1.84	0.41
22:r:208:ARG:N	22:r:291:ASP:OD1	2.52	0.41
25:v:29:LEU:N	26:x:147:ARG:O	2.52	0.41
32:k:388:LYS:HA	32:k:389:PRO:HA	1.83	0.41
2:B:174:THR:O	2:B:175:LEU:C	2.64	0.41
24:u:89:SER:HB3	25:v:365:ARG:HE	1.86	0.41
6:F:104:ASN:HD22	6:F:104:ASN:HA	1.70	0.40
18:W:250:ARG:NH2	18:W:284:ASP:OD2	2.53	0.40
32:k:37:THR:O	32:k:38:LYS:C	2.64	0.40
32:k:269:PRO:HB3	32:k:302:ARG:HH21	1.85	0.40
1:A:557:TRP:O	11:K:26:ARG:NH1	2.54	0.40
2:B:184:LYS:HB3	2:B:787:VAL:HG21	2.03	0.40
2:B:479:TYR:CE2	2:B:778:MET:HG2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:63:PRO:HB3	5:E:74:LEU:HD23	2.03	0.40
19:m:295:THR:OG1	19:m:298:ASP:OD2	2.37	0.40
27:a:120:MET:HE2	27:a:122:LYS:HE2	2.03	0.40
27:e:102:GLY:HA2	27:e:105:GLU:OE1	2.22	0.40
27:e:109:LEU:HD22	32:k:430:ASN:OD1	2.21	0.40
2:B:1008:PRO:HB3	2:B:1087:PHE:HE1	1.86	0.40
3:C:21:LEU:HD22	11:K:101:LEU:HD11	2.03	0.40
7:G:51:GLY:HA2	7:G:54:ILE:HD11	2.03	0.40
16:T:5:DC:H2"	16:T:6:DC:C5	2.56	0.40
19:m:1286:PHE:HA	19:m:1308:ILE:HB	2.03	0.40
31:j:614:PHE:CE2	32:k:112:TRP:HB3	2.56	0.40
32:k:10:PHE:CD2	32:k:61:ARG:NH1	2.89	0.40
1:A:109:ASN:HD21	20:n:199:LEU:HB3	1.85	0.40
2:B:1072:MET:HG3	2:B:1085:VAL:HB	2.04	0.40
18:W:524:GLU:HB2	20:n:232:GLN:HE22	1.87	0.40
19:m:243:ASP:OD1	19:m:243:ASP:N	2.55	0.40
31:j:917:TRP:O	31:j:921:MET:HG2	2.22	0.40
1:A:26:GLU:OE2	4:D:13:ARG:NH1	2.54	0.40
1:A:554:VAL:HB	1:A:557:TRP:HB2	2.04	0.40
2:B:815:ARG:NH1	25:v:132:GLN:O	2.54	0.40
3:C:199:LYS:HB3	3:C:199:LYS:HE2	1.80	0.40
19:m:965:VAL:HG21	19:m:992:ILE:HG21	2.03	0.40
20:n:241:ILE:HG23	20:n:246:ILE:HD12	2.03	0.40
29:g:34:LEU:HD23	29:g:34:LEU:HA	1.92	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%)	1357 (98%)	34 (2%)	1 (0%)	48 79

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	1154/1227 (94%)	1127 (98%)	27 (2%)	0	100	100
3	C	261/304 (86%)	259 (99%)	2 (1%)	0	100	100
4	D	170/186 (91%)	168 (99%)	2 (1%)	0	100	100
5	E	211/214 (99%)	207 (98%)	4 (2%)	0	100	100
6	F	82/155 (53%)	79 (96%)	3 (4%)	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%)	105 (96%)	4 (4%)	0	100	100
10	J	65/72 (90%)	65 (100%)	0	0	100	100
11	K	111/118 (94%)	109 (98%)	2 (2%)	0	100	100
12	L	43/72 (60%)	41 (95%)	2 (5%)	0	100	100
13	M	62/113 (55%)	61 (98%)	1 (2%)	0	100	100
17	V	104/108 (96%)	102 (98%)	2 (2%)	0	100	100
18	W	529/911 (58%)	506 (96%)	23 (4%)	0	100	100
19	m	1170/1503 (78%)	1152 (98%)	18 (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	s	9/725 (1%)	9 (100%)	0	0	100	100
24	u	206/459 (45%)	206 (100%)	0	0	100	100
25	v	341/396 (86%)	330 (97%)	11 (3%)	0	100	100
26	x	201/395 (51%)	200 (100%)	1 (0%)	0	100	100
27	a	73/139 (52%)	67 (92%)	6 (8%)	0	100	100
27	e	75/139 (54%)	73 (97%)	2 (3%)	0	100	100
28	b	81/106 (76%)	77 (95%)	4 (5%)	0	100	100
28	f	76/106 (72%)	73 (96%)	3 (4%)	0	100	100
29	g	90/133 (68%)	87 (97%)	3 (3%)	0	100	100
30	h	91/129 (70%)	89 (98%)	2 (2%)	0	100	100
31	j	444/965 (46%)	428 (96%)	14 (3%)	2 (0%)	25	59
32	k	430/531 (81%)	409 (95%)	21 (5%)	0	100	100
All	All	9203/13425 (69%)	8989 (98%)	211 (2%)	3 (0%)	100	100

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	960	VAL
31	j	544	ASN
31	j	866	GLY

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1219/1528 (80%)	1219 (100%)	0	100	100
2	B	1018/1077 (94%)	1014 (100%)	4 (0%)	89	94
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	482/796 (61%)	482 (100%)	0	100	100
19	m	1079/1354 (80%)	1078 (100%)	1 (0%)	92	97
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	s	11/649 (2%)	11 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
24	u	192/406 (47%)	192 (100%)	0	100 100
25	v	325/369 (88%)	325 (100%)	0	100 100
26	x	190/354 (54%)	190 (100%)	0	100 100
27	a	63/112 (56%)	63 (100%)	0	100 100
27	e	64/112 (57%)	64 (100%)	0	100 100
28	b	68/81 (84%)	68 (100%)	0	100 100
28	f	63/81 (78%)	63 (100%)	0	100 100
29	g	72/102 (71%)	71 (99%)	1 (1%)	62 79
30	h	79/107 (74%)	79 (100%)	0	100 100
31	j	412/852 (48%)	408 (99%)	4 (1%)	73 84
32	k	396/474 (84%)	395 (100%)	1 (0%)	91 96
All	All	8305/11829 (70%)	8294 (100%)	11 (0%)	92 97

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	425	MET
2	B	815	ARG
2	B	879	ARG
2	B	904	ARG
19	m	770	PHE
29	g	75	LYS
31	j	740	MET
31	j	865	PHE
31	j	867	LEU
31	j	888	THR
32	k	388	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (91) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	54	ASN
1	A	276	ASN
1	A	278	GLN
1	A	288	HIS
1	A	291	ASN
1	A	387	HIS

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Mol	Chain	Res	Type
1	A	661	ASN
1	A	690	GLN
1	A	1056	GLN
1	A	1080	GLN
2	B	157	HIS
2	B	477	ASN
2	B	492	ASN
2	B	524	GLN
2	B	549	ASN
2	B	996	HIS
2	B	1074	ASN
2	B	1179	GLN
3	C	8	ASN
3	C	25	ASN
4	D	46	HIS
4	D	130	ASN
4	D	170	ASN
5	E	53	GLN
5	E	162	GLN
6	F	104	ASN
6	F	119	GLN
6	F	127	GLN
7	G	122	ASN
8	H	43	ASN
9	I	23	GLN
11	K	113	ASN
12	L	55	HIS
13	M	65	GLN
18	W	283	ASN
18	W	402	HIS
18	W	558	ASN
18	W	786	ASN
19	m	428	HIS
19	m	553	HIS
19	m	661	GLN
19	m	819	ASN
19	m	869	HIS
19	m	886	HIS
19	m	899	GLN
19	m	998	ASN
19	m	1191	ASN
19	m	1193	GLN

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Mol	Chain	Res	Type
19	m	1242	GLN
19	m	1288	ASN
19	m	1338	ASN
19	m	1436	ASN
20	n	156	GLN
20	n	232	GLN
21	q	58	ASN
21	q	132	ASN
21	q	147	ASN
21	q	187	GLN
21	q	319	ASN
21	q	397	ASN
21	q	398	GLN
21	q	503	GLN
21	q	526	ASN
21	q	615	HIS
21	q	625	HIS
22	r	279	GLN
22	r	493	ASN
24	u	103	GLN
24	u	138	GLN
24	u	172	GLN
24	u	261	GLN
25	v	64	ASN
25	v	199	HIS
25	v	283	ASN
25	v	305	GLN
25	v	381	GLN
26	x	246	ASN
26	x	251	GLN
28	b	25	ASN
27	e	85	GLN
29	g	38	ASN
31	j	523	HIS
31	j	578	ASN
31	j	841	GLN
31	j	869	ASN
31	j	916	ASN
32	k	93	GLN
32	k	127	ASN
32	k	148	HIS
32	k	362	GLN

Continued on next page...

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Mol	Chain	Res	Type
32	k	420	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
15	P	19/20 (95%)	8 (42%)	0

All (8) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
15	P	-6	C
15	P	-5	U
15	P	-4	U
15	P	-3	G
15	P	-2	U
15	P	-1	G
15	P	0	C
15	P	1	U

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

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 (i)

There are no chain breaks in this entry.

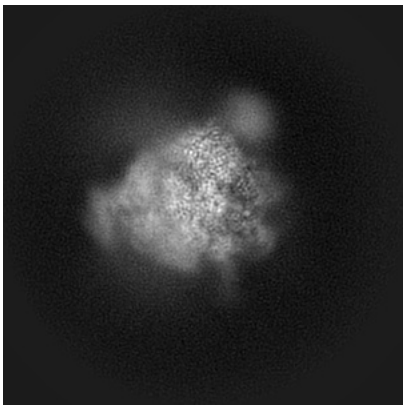
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-66107. These allow visual inspection of the internal detail of the map and identification of artifacts.

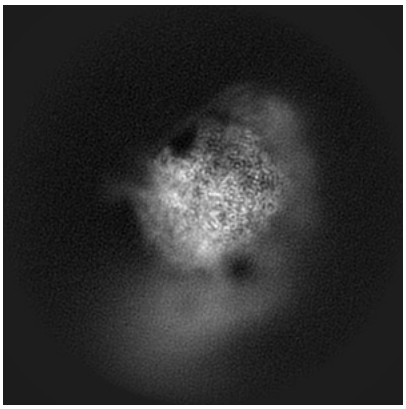
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

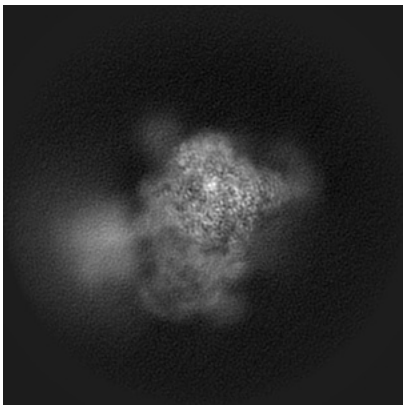
6.1.1 Primary map



X

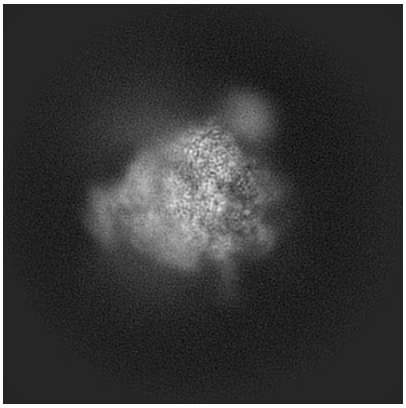


Y

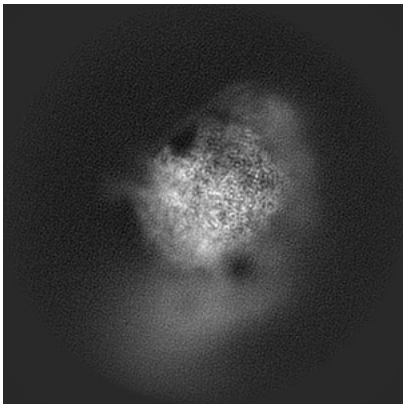


Z

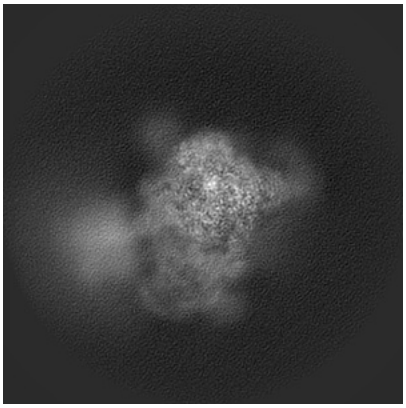
6.1.2 Raw map



X



Y

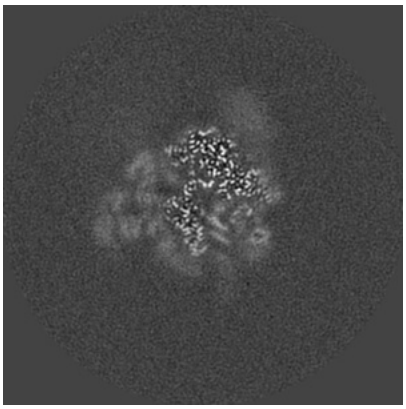


Z

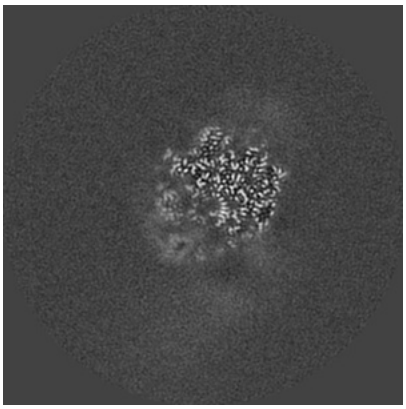
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

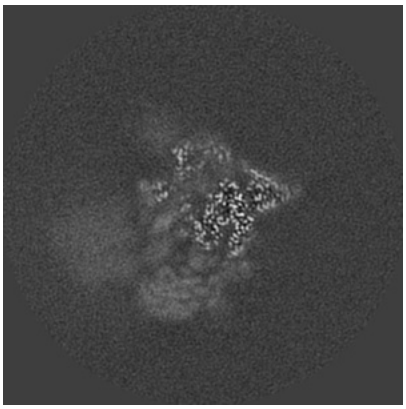
6.2.1 Primary map



X Index: 135

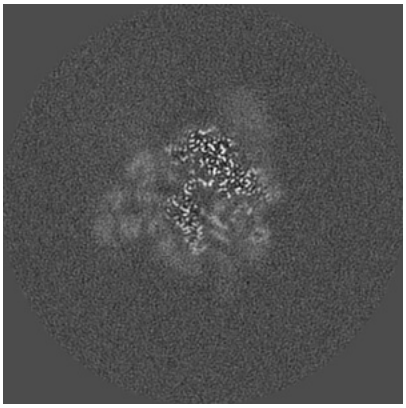


Y Index: 135

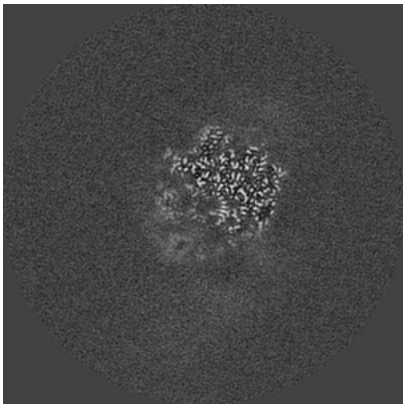


Z Index: 135

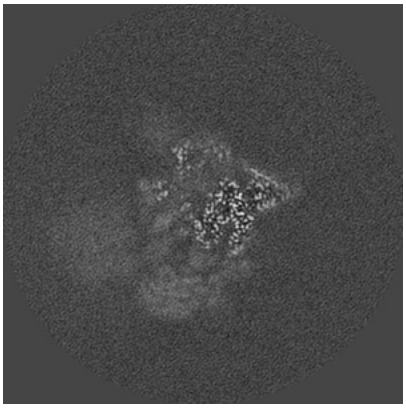
6.2.2 Raw map



X Index: 135



Y Index: 135

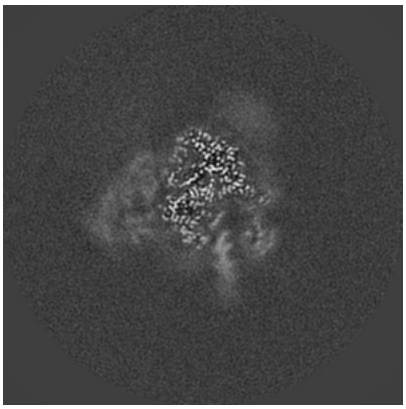


Z Index: 135

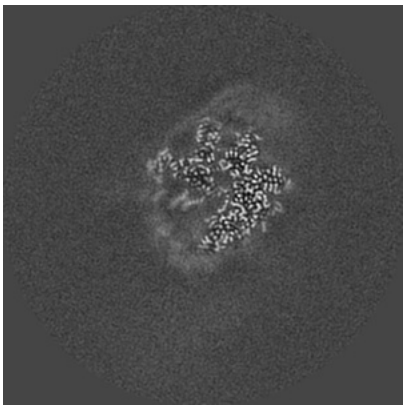
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

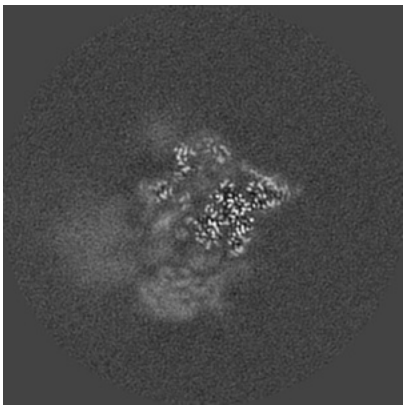
6.3.1 Primary map



X Index: 141

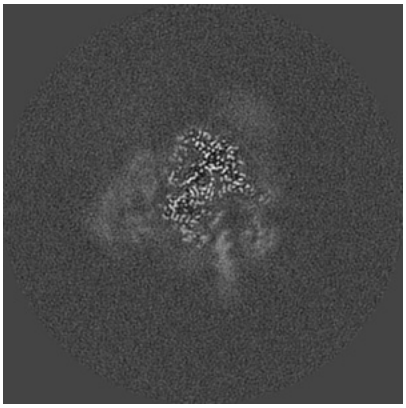


Y Index: 142

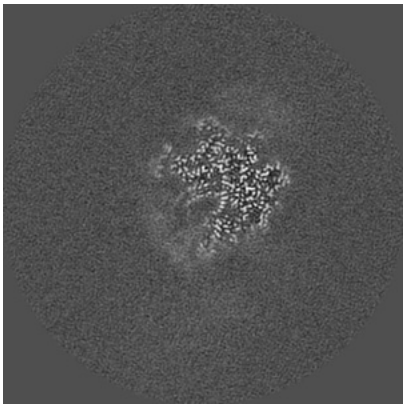


Z Index: 136

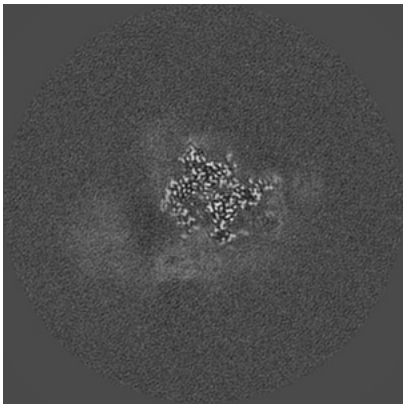
6.3.2 Raw map



X Index: 141



Y Index: 139

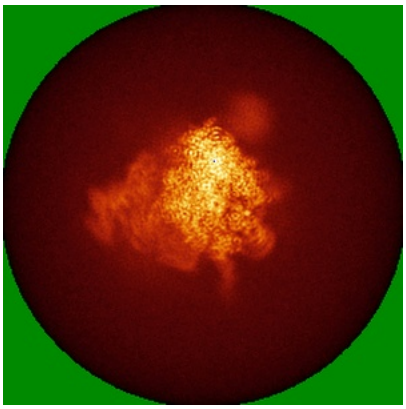


Z Index: 154

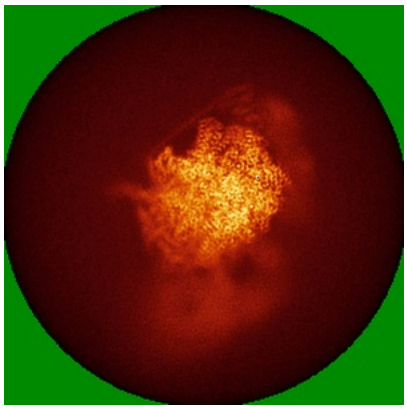
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

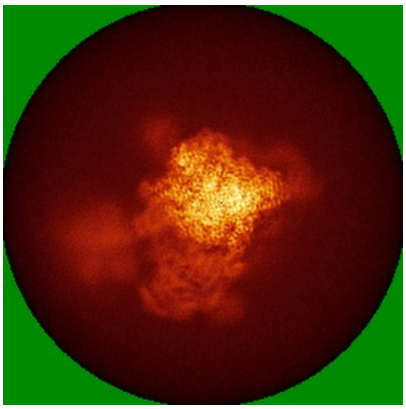
6.4.1 Primary map



X

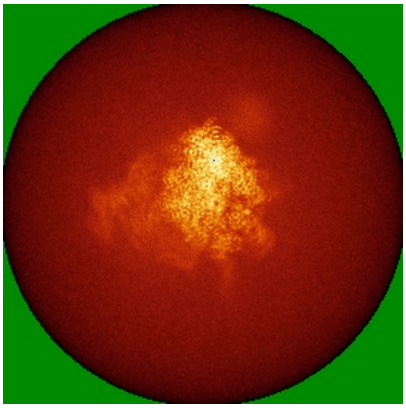


Y

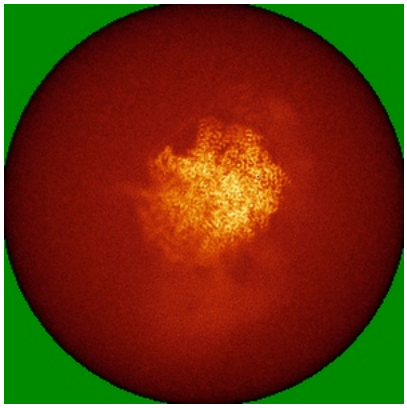


Z

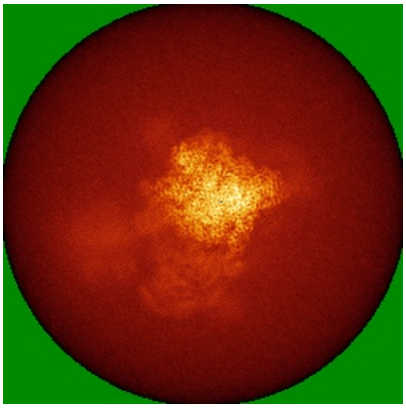
6.4.2 Raw map



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.

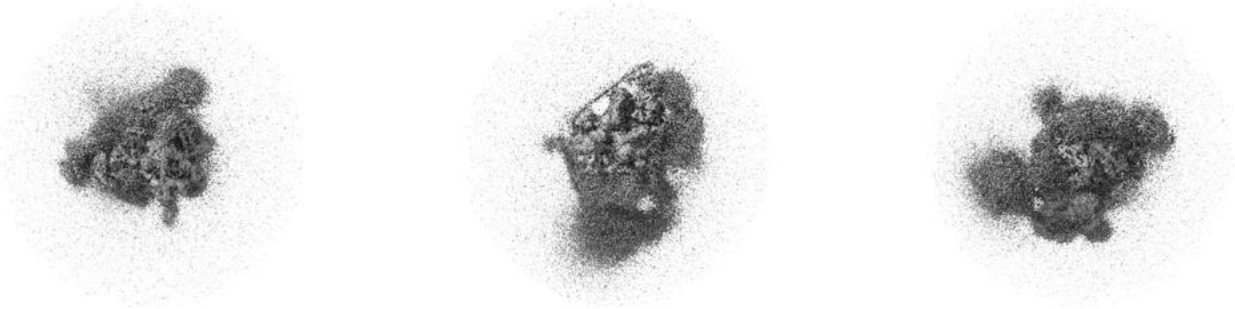
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.016. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

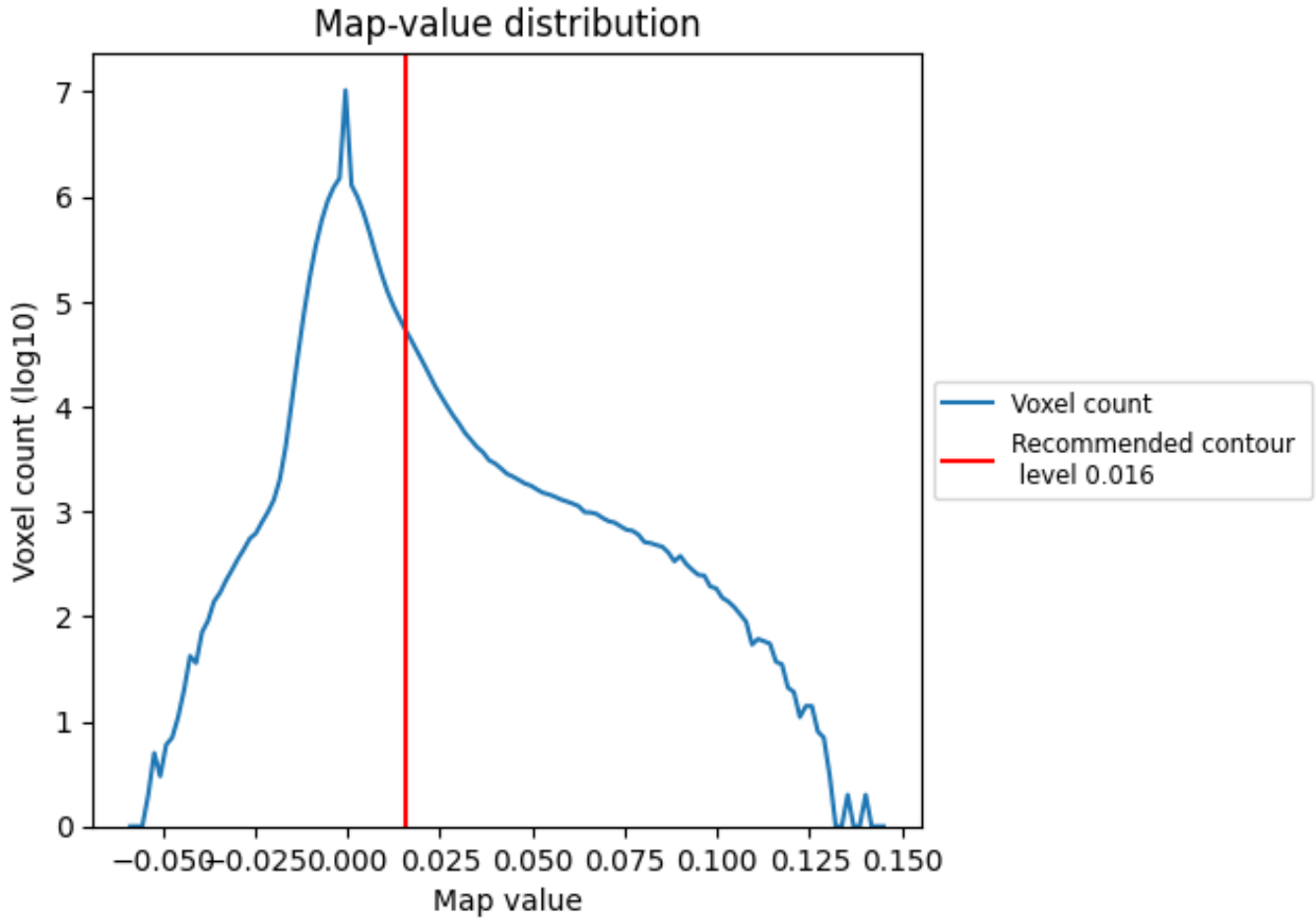
6.6 Mask visualisation (i)

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

7 Map analysis

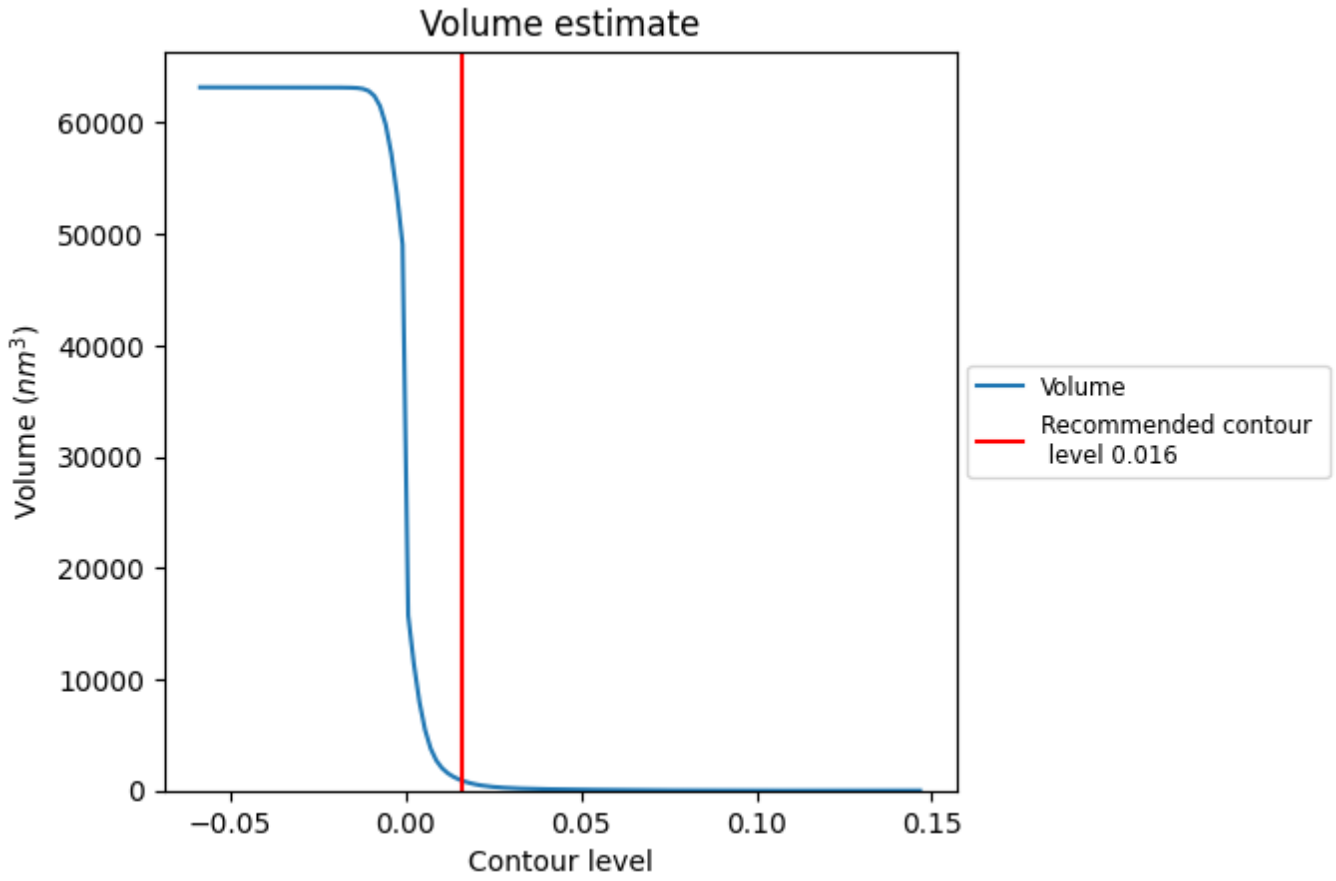
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

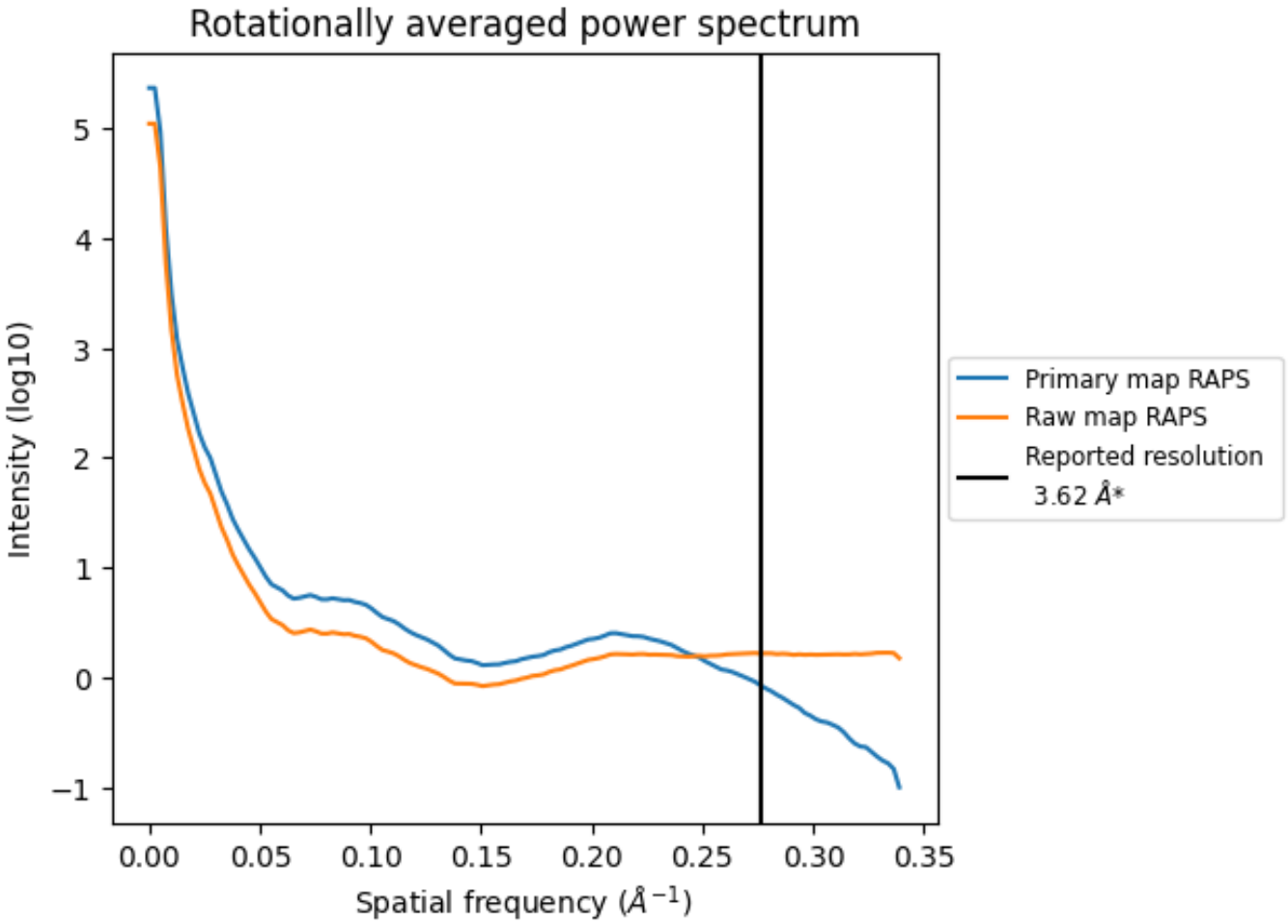
7.2 Volume estimate



The volume at the recommended contour level is 903 nm^3; this corresponds to an approximate mass of 815 kDa.

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

7.3 Rotationally averaged power spectrum (i)

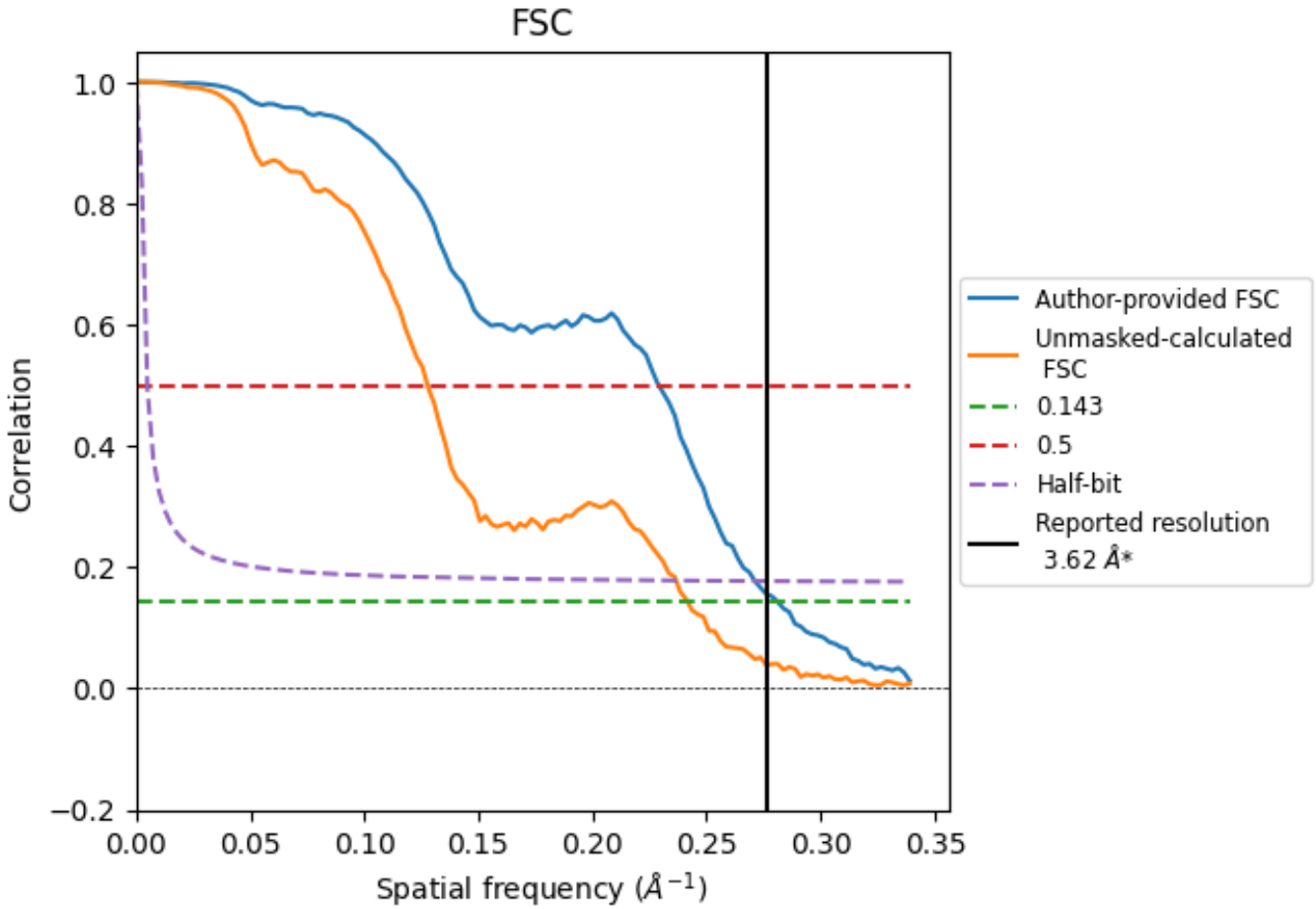


*Reported resolution corresponds to spatial frequency of 0.276 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.276 Å^{-1}

8.2 Resolution estimates (i)

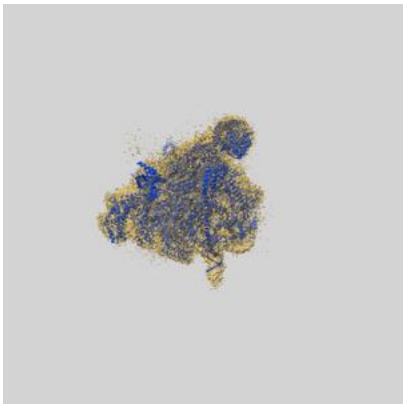
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.62	-	-
Author-provided FSC curve	3.56	4.36	3.69
Unmasked-calculated*	4.14	7.83	4.22

*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 4.14 differs from the reported value 3.62 by more than 10 %

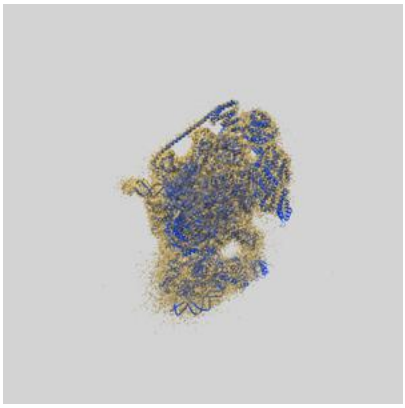
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-66107 and PDB model 9WMW. Per-residue inclusion information can be found in section 3 on page 17.

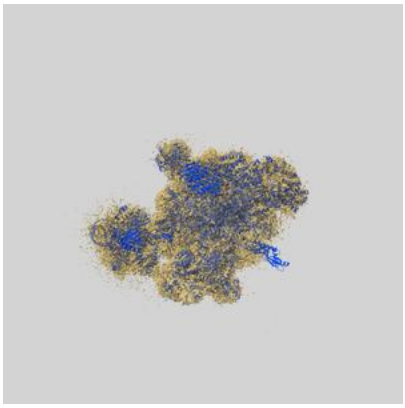
9.1 Map-model overlay



X



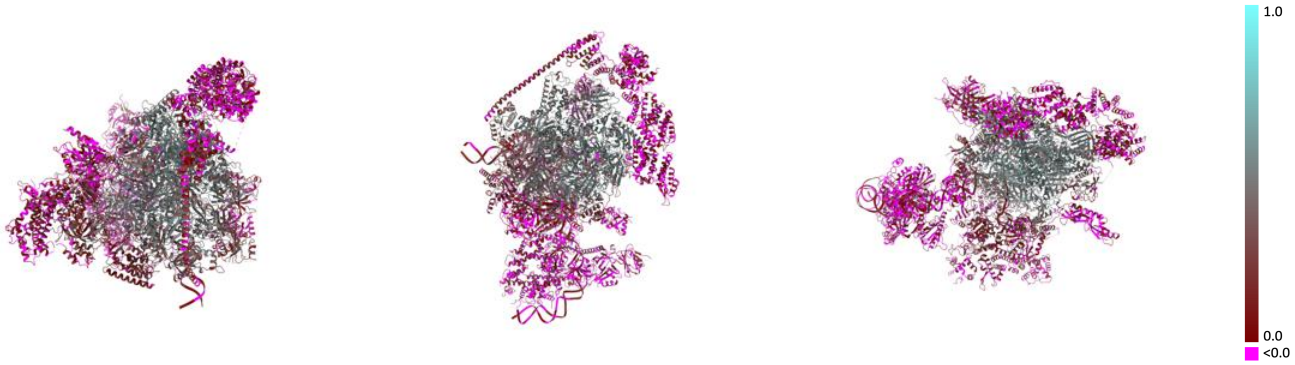
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.016 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.

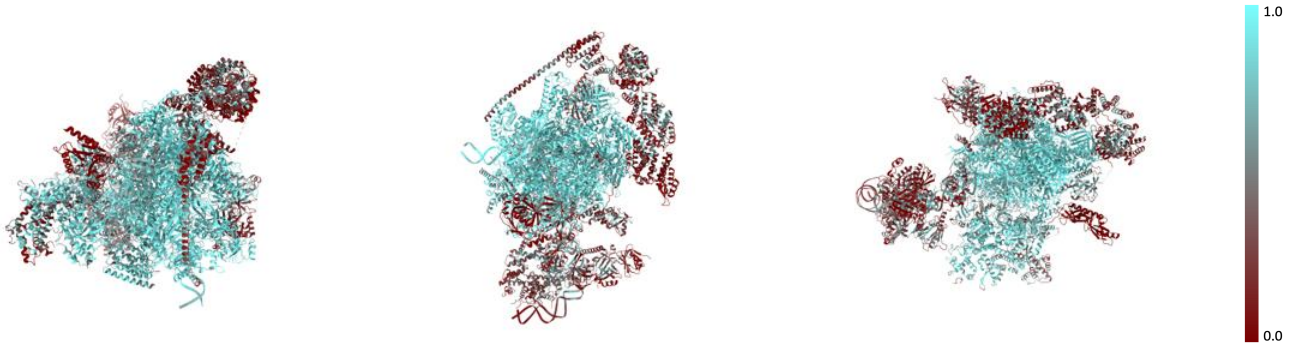
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

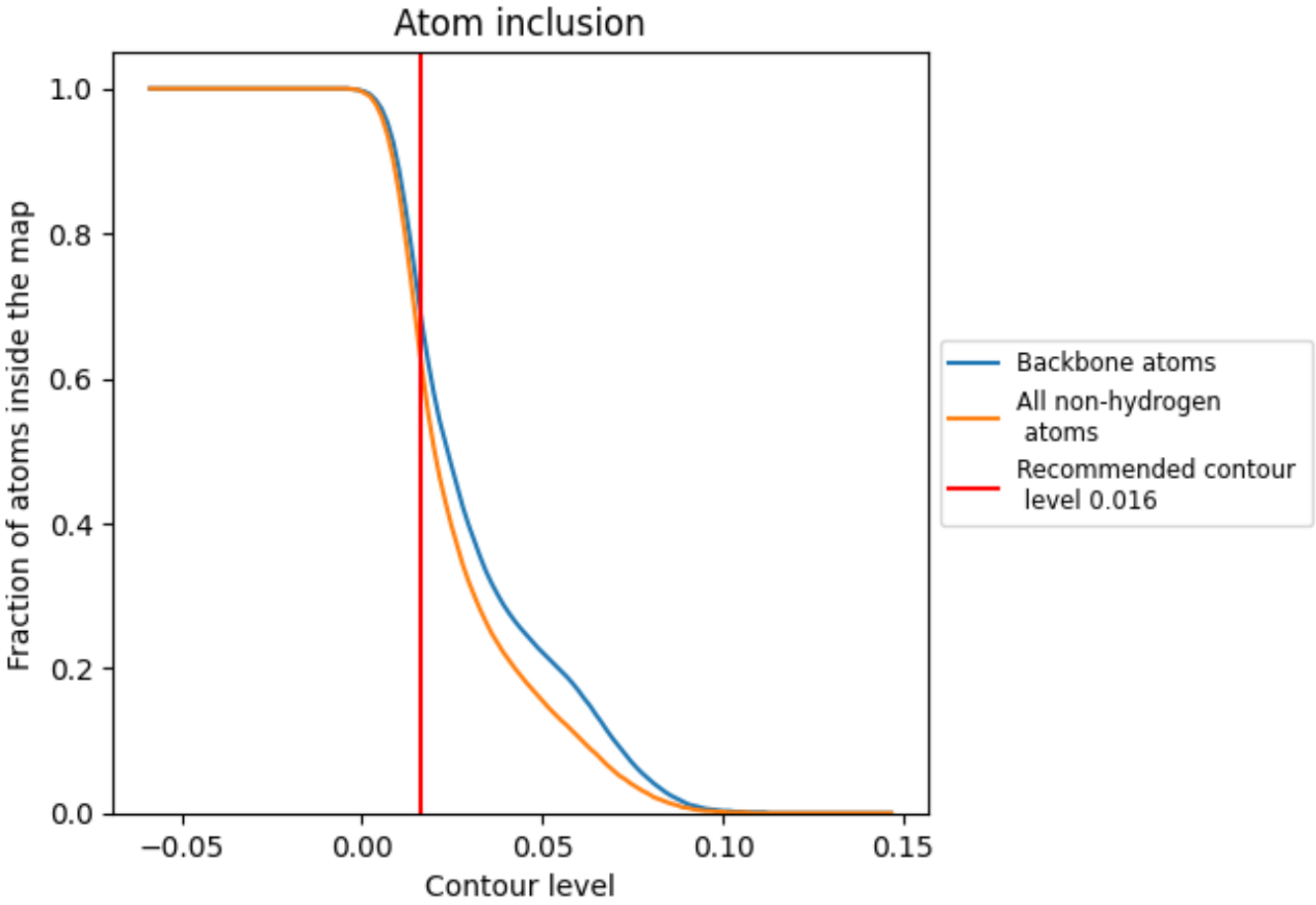
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.016).

9.4 Atom inclusion (i)



At the recommended contour level, 70% of all backbone atoms, 64% 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 (0.016) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6370	0.2290
A	0.9330	0.4680
B	0.9290	0.4740
C	0.9390	0.5000
D	0.7730	0.2030
E	0.9460	0.4450
F	0.9540	0.5060
G	0.8470	0.3080
H	0.9520	0.4850
I	0.8810	0.3290
J	0.9500	0.5150
K	0.9550	0.5040
L	0.9570	0.4610
M	0.7640	0.1520
N	0.6340	0.1100
P	0.8420	0.3260
T	0.6860	0.1610
V	0.8310	0.1080
W	0.7330	0.1850
a	0.4790	0.0130
b	0.3730	0.0110
e	0.3860	0.0120
f	0.3530	0.0550
g	0.2160	0.0290
h	0.1650	-0.0500
j	0.3280	0.0050
k	0.1830	0.0000
m	0.6060	0.0810
n	0.8170	0.1630
q	0.2720	0.0400
r	0.3490	0.1160
s	0.2780	0.0340
u	0.2470	0.1020
v	0.1900	0.0570
x	0.4610	0.2300