



wwPDB EM Validation Summary Report ⓘ

Oct 26, 2022 – 01:28 PM JST

PDB ID : 8GXS
EMDB ID : EMD-34360
Title : PIC-Mediator in complex with +1 nucleosome (T40N) in H-binding state
Authors : Chen, X.; Wang, X.; Liu, W.; Ren, Y.; Qu, X.; Li, J.; Yin, X.
Deposited on : 2022-09-21
Resolution : 4.16 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

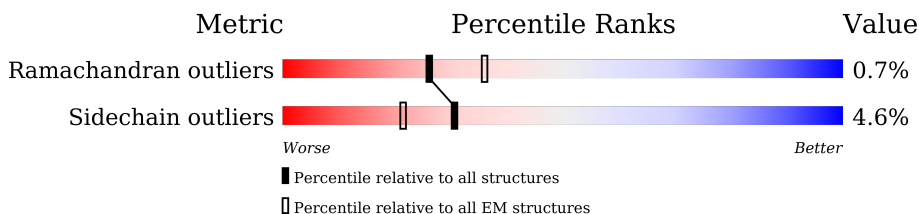
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al.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

1 Overall quality at a glance

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

The reported resolution of this entry is 4.16 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	X	228	
2	Y	228	
3	NX	162	
4	NY	162	
5	BA	316	
6	DA	1872	
7	EA	439	
8	FA	517	
9	HA	760	

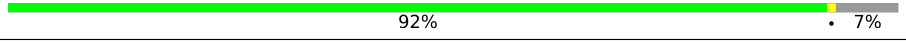















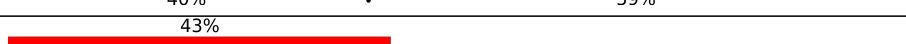
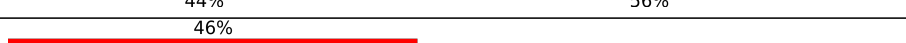



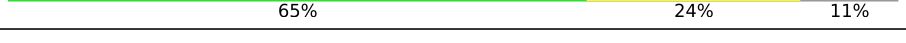

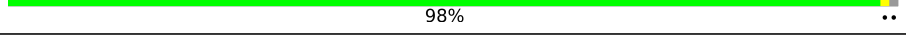

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Mol	Chain	Length	Quality of chain
10	NA	136	71% 26%
10	NE	136	74% 24%
11	PA	1970	74% 25%
12	DB	1199	79% 20%
13	EB	291	58% 41%
14	FB	249	88% 11%
15	HB	548	48% 52%
16	NB	103	78% 22%
16	NF	103	81% 17%
17	PB	1174	97%
18	HC	462	84% 16%
19	DO	109	89% 9%
20	DP	339	53% 47%
21	DQ	376	30% 70%
22	PC	275	93% 7%
23	PE	210	100%
24	PF	127	61% 38%
25	PH	150	99%
26	PI	125	91% 9%
27	PJ	67	96%
28	PK	117	97%
29	PL	58	76% 24%
30	HD	309	87% 12%
31	HG	395	88% 12%
32	HE	308	84% 15%

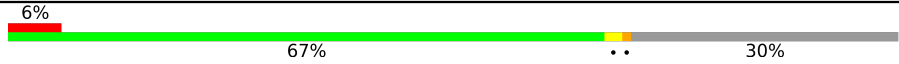


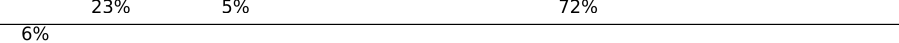
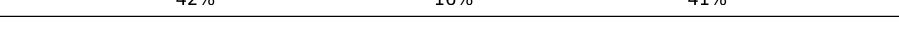
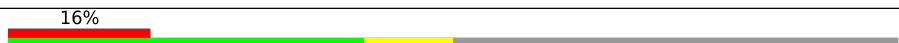





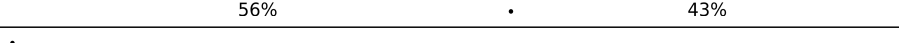
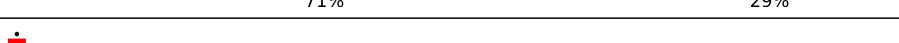

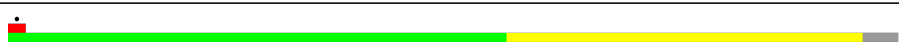




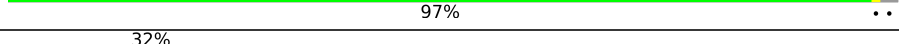
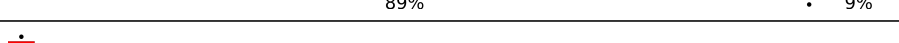
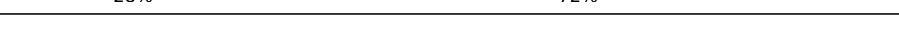



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Mol	Chain	Length	Quality of chain
33	HF	71	 92% 7%
34	HH	782	 77% 23%
35	DD	1085	 85% 14% 5%
35	Dd	1085	 85% 15%
36	DE	800	 66% 32% 9%
36	De	800	 67% 33% 53%
37	DF	677	 55% 40% 14%
37	Df	677	 58% 40% 28%
38	DG	349	 58% 39% 26%
39	DH	310	 63% 33% 5% 5%
40	DI	264	 42% 55% 12%
40	Di	264	 45% 54% 43%
41	DL	161	 38% 54% 29% 7%
41	DI	161	 66% 34% 66%
42	Dc	929	 86% 13% 12%
43	DJ	218	 40% 59%
43	Dj	218	 44% 56% 43%
44	Dk	211	 46% 54% 46%
45	Dm	124	 69% 30% 70%
46	HI	346	 64% 23% 14%
47	HJ	323	 65% 24% 11% 12%
48	PD	142	 89% 10%
49	PG	172	 98%
50	g	233	 41% 55% 5%
51	j	135	 88% 10%




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Mol	Chain	Length	Quality of chain
52	n	1454	
53	s	244	
54	u	144	
55	a	1581	
56	d	270	
57	f	246	
58	i	146	
59	m	131	
60	q	651	
61	z	600	
62	b	200	
63	c	311	
64	e	178	
65	l	178	
66	o	788	
67	h	268	
68	k	117	
69	r	208	
70	t	212	
71	v	200	
72	p	841	
73	w	1368	
74	x	989	
75	y	747	
76	NC	128	

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Mol	Chain	Length	Quality of chain
76	NG	128	 80% 16%
77	ND	126	 75% 25%
77	NH	126	 75% 25%

2 Entry composition [i](#)

There are 80 unique types of molecules in this entry. The entry contains 185972 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 DNA chain called DNA (228-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	X	67	1387	652	275	394	66	0	0

- Molecule 2 is a DNA chain called DNA (228-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	Y	67	1357	643	239	408	67	0	0

- Molecule 3 is a DNA chain called DNA (162-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	NX	162	3078	1458	486	972	162	0	0

- Molecule 4 is a DNA chain called DNA (162-mer).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	NY	162	3561	1620	810	970	161	0	0

- Molecule 5 is a protein called Transcription initiation factor IIB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	BA	252	1953	1224	346	366	17	0	0

- Molecule 6 is a protein called Transcription initiation factor TFIID subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	DA	558	4563	2913	791	832	27	0	0

- Molecule 7 is a protein called General transcription factor IIE subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	EA	187	1535	964	275	285	11	0	0

- Molecule 8 is a protein called General transcription factor IIF subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	FA	138	1138	719	208	208	3	0	0

- Molecule 9 is a protein called General transcription and DNA repair factor IIIH helicase subunit XPD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	HA	714	5751	3683	999	1040	29	0	0

- Molecule 10 is a protein called Histone H3.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
10	NA	100	498	298	100	100	0	0
10	NE	103	511	305	103	103	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerase subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	PA	1471	11628	7314	2064	2178	72	0	0

- Molecule 12 is a protein called Transcription initiation factor TFIID subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	DB	963	7796	5011	1315	1412	58	0	0

- Molecule 13 is a protein called Transcription initiation factor IIE subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	EB	171	1403	895	243	261	4	0	0

- Molecule 14 is a protein called General transcription factor IIF subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	FB	222	1788	1127	320	338	3	0	0

- Molecule 15 is a protein called General transcription factor IIH subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	HB	265	2167	1382	378	395	12	0	0

- Molecule 16 is a protein called Histone H4.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
16	NB	80	391	231	80	80	0	0
16	NF	86	421	249	86	86	0	0

- Molecule 17 is a protein called DNA-directed RNA polymerase subunit beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	PB	1136	9076	5739	1597	1676	64	0	0

- Molecule 18 is a protein called General transcription factor IIH subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	HC	390	3158	2050	545	551	12	0	0

- Molecule 19 is a protein called Transcription initiation factor IIA subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	DO	99	806	510	142	151	3	0	0

- Molecule 20 is a protein called TATA-box-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	DP	179	1422	923	251	241	7	0	0

- Molecule 21 is a protein called Transcription initiation factor IIA subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	DQ	113	930	585	152	189	4	0	0

- Molecule 22 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	PC	257	2059	1294	351	408	6	0	0

- Molecule 23 is a protein called DNA-directed RNA polymerase II subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	PE	209	1721	1089	300	324	8	0	0

- Molecule 24 is a protein called DNA-directed RNA polymerase II subunit F.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	PF	79	636	406	108	117	5	0	0

- Molecule 25 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	PH	148	1186	750	194	237	5	0	0

- Molecule 26 is a protein called DNA-directed RNA polymerase II subunit RPB9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	PI	114	928	571	166	180	11	0	0

- Molecule 27 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	PJ	64	507	328	86	87	6	0	0

- Molecule 28 is a protein called RNA_pol_L_2 domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	PK	115	920	593	152	173	2	0	0

- Molecule 29 is a protein called RPB12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	PL	44	373	231	72	64	6	0	0

- Molecule 30 is a protein called CDK-activating kinase assembly factor MAT1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	HD	306	2400	1498	424	465	13	0	0

- Molecule 31 is a protein called General transcription factor IIH subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	HG	347	2732	1726	471	508	27	0	0

- Molecule 32 is a protein called General transcription factor IIH subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	HE	263	2066	1323	344	380	19	0	0

- Molecule 33 is a protein called General transcription factor IIH subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	HF	66	523	337	83	100	3	0	0

- Molecule 34 is a protein called General transcription and DNA repair factor IIH helicase subunit XPB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	HH	605	4890	3127	848	885	30	0	0

- Molecule 35 is a protein called Transcription initiation factor TFIID subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	DD	159	Total	C	N	O	S	0	0
			1330	830	248	249	3		
35	Dd	158	Total	C	N	O	S	0	0
			1307	814	238	252	3		

- Molecule 36 is a protein called Transcription initiation factor TFIID subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	DE	546	Total	C	N	O	S	0	0
			4364	2766	757	820	21		
36	De	539	Total	C	N	O	S	0	0
			4327	2746	748	814	19		

- Molecule 37 is a protein called Transcription initiation factor TFIID subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	DF	408	Total	C	N	O	S	0	0
			3109	1970	542	579	18		
37	Df	403	Total	C	N	O	S	0	0
			3081	1954	533	576	18		

- Molecule 38 is a protein called Transcription initiation factor TFIID subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	DG	145	Total	C	N	O	S	0	0
			1180	748	217	211	4		

- Molecule 39 is a protein called Transcription initiation factor TFIID subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	DH	209	Total	C	N	O	S	0	0
			1633	1034	283	311	5		

- Molecule 40 is a protein called Transcription initiation factor TFIID subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	DI	120	Total	C	N	O	S	0	0
			959	610	166	177	6		
40	Di	121	Total	C	N	O	S	0	0
			967	615	167	178	7		

- Molecule 41 is a protein called Transcription initiation factor TFIID subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	DL	74	Total	C	N	O	S	0	0
			605	379	105	118	3		
41	Dl	107	Total	C	N	O	S	0	0
			876	547	158	166	5		

- Molecule 42 is a protein called Transcription initiation factor TFIID subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	Dc	127	Total	C	N	O	S	0	0
			1011	638	174	193	6		

- Molecule 43 is a protein called Transcription initiation factor TFIID subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	Dj	95	Total	C	N	O	S	0	0
			759	488	124	143	4		
43	DJ	90	Total	C	N	O	S	0	0
			720	466	115	135	4		

- Molecule 44 is a protein called Transcription initiation factor TFIID subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	Dk	98	Total	C	N	O	S	0	0
			785	499	142	139	5		

- Molecule 45 is a protein called Transcription initiation factor TFIID subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	Dm	87	Total	C	N	O	S	0	0
			724	456	131	131	6		

- Molecule 46 is a protein called Cyclin-dependent kinase 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	HI	299	Total	C	N	O	S	0	0
			2374	1532	405	426	11		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
HI	41	ALA	LYS	engineered mutation	UNP P50613

- Molecule 47 is a protein called Cyclin-H.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	HJ	287	2307	1477	398	417	15	0	0

- Molecule 48 is a protein called DNA-directed RNA polymerase II subunit RPB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	PD	128	1050	656	178	212	4	0	0

- Molecule 49 is a protein called DNA-directed RNA polymerase II subunit RPB7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	PG	171	1351	875	219	249	8	0	0

- Molecule 50 is a protein called Mediator of RNA polymerase II transcription subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	g	106	898	569	166	157	6	0	0

- Molecule 51 is a protein called Mediator of RNA polymerase II transcription subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	j	122	840	527	151	159	3	0	0

- Molecule 52 is a protein called Mediator of RNA polymerase II transcription subunit 14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	n	1015	7751	4941	1363	1405	42	0	0

- Molecule 53 is a protein called Mediator of RNA polymerase II transcription subunit 19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	s	93	723	463	121	135	4	0	0

- Molecule 54 is a protein called Mediator of RNA polymerase II transcription subunit 21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
54	u	117	886	552	146	184	4	0	0

- Molecule 55 is a protein called Mediator of RNA polymerase II transcription subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
55	a	438	3430	2190	584	632	24	0	0

- Molecule 56 is a protein called Mediator of RNA polymerase II transcription subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	d	158	1268	791	228	243	6	0	0

- Molecule 57 is a protein called Mediator of RNA polymerase II transcription subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	f	167	1365	882	235	243	5	0	0

- Molecule 58 is a protein called Mediator of RNA polymerase II transcription subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
58	i	73	605	382	107	110	6	0	0

- Molecule 59 is a protein called Mediator of RNA polymerase II transcription subunit 31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	m	112	983	641	172	165	5	0	0

- Molecule 60 is a protein called Mediator of RNA polymerase II transcription subunit 17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
60	q	555	4373	2765	783	805	20	0	0

- Molecule 61 is a protein called Mediator of RNA polymerase II transcription subunit 26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
61	z	97	765	472	136	154	3	0	0

- Molecule 62 is a protein called Mediator of RNA polymerase II transcription subunit 29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
62	b	115	899	563	155	172	9	0	0

- Molecule 63 is a protein called Mediator of RNA polymerase II transcription subunit 27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
63	c	263	2131	1356	379	385	11	0	0

- Molecule 64 is a protein called Mediator of RNA polymerase II transcription subunit 28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
64	e	102	832	520	146	163	3	0	0

- Molecule 65 is a protein called Mediator of RNA polymerase II transcription subunit 30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
65	l	126	1040	649	191	193	7	0	0

- Molecule 66 is a protein called Mediator of RNA polymerase II transcription subunit 15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
66	o	156	1221	780	212	222	7	0	0

- Molecule 67 is a protein called Isoform 2 of Mediator of RNA polymerase II transcription subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
67	h	190	1465	913	259	289	4	0	0

- Molecule 68 is a protein called Mediator of RNA polymerase II transcription subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
68	k	112	879	537	163	175	4	0	0

- Molecule 69 is a protein called Mediator of RNA polymerase II transcription subunit 18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
69	r	192	1535	973	271	276	15	0	0

- Molecule 70 is a protein called Mediator of RNA polymerase II transcription subunit 20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
70	t	193	1499	955	247	280	17	0	0

- Molecule 71 is a protein called Mediator of RNA polymerase II transcription subunit 22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
71	v	134	1083	668	185	226	4	0	0

- Molecule 72 is a protein called Isoform 2 of Mediator of RNA polymerase II transcription subunit 16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
72	p	766	5983	3816	1026	1092	49	0	0

- Molecule 73 is a protein called Mediator of RNA polymerase II transcription subunit 23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
73	w	1334	10774	6967	1827	1909	71	0	0

- Molecule 74 is a protein called Mediator of RNA polymerase II transcription subunit 24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
74	x	897	7061	4524	1190	1293	54	0	0

- Molecule 75 is a protein called Mediator of RNA polymerase II transcription subunit 25.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	y	210	Total	C	N	O	S	0	0
			1605	1030	264	302	9		

- Molecule 76 is a protein called HISTONE H2A.Z.

Mol	Chain	Residues	Atoms				AltConf	Trace
76	NC	103	Total	C	N	O	0	0
			506	300	103	103		
76	NG	107	Total	C	N	O	0	0
			524	310	107	107		

- Molecule 77 is a protein called Histone H2B.

Mol	Chain	Residues	Atoms				AltConf	Trace
77	ND	95	Total	C	N	O	0	0
			471	281	95	95		
77	NH	95	Total	C	N	O	0	0
			471	281	95	95		

- Molecule 78 is ZINC ION (three-letter code: ZN) (formula: Zn).

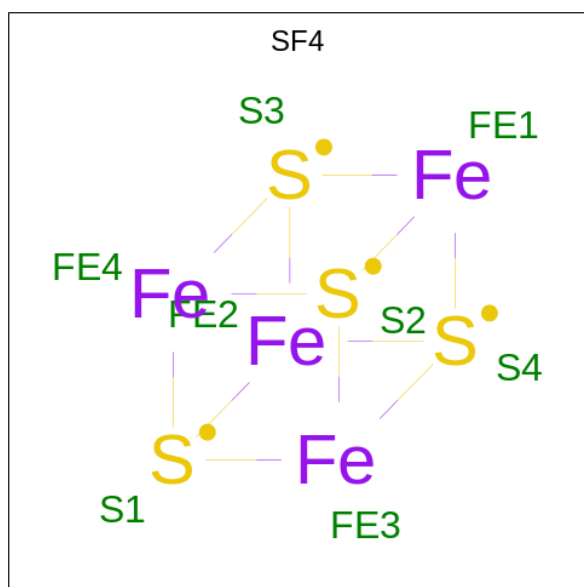
Mol	Chain	Residues	Atoms		AltConf
78	BA	1	Total	Zn	0
			1	1	
78	EA	1	Total	Zn	0
			1	1	
78	PA	2	Total	Zn	0
			2	2	
78	PB	1	Total	Zn	0
			1	1	
78	PC	1	Total	Zn	0
			1	1	
78	PI	2	Total	Zn	0
			2	2	
78	PJ	1	Total	Zn	0
			1	1	
78	PL	1	Total	Zn	0
			1	1	
78	HD	2	Total	Zn	0
			2	2	
78	HG	3	Total	Zn	0
			3	3	

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Mol	Chain	Residues	Atoms		AltConf
78	HE	2	Total	Zn	0
			2	2	
78	c	1	Total	Zn	0
			1	1	
78	p	1	Total	Zn	0
			1	1	

- Molecule 79 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄).



Mol	Chain	Residues	Atoms			AltConf
79	HA	1	Total	Fe	S	0
			8	4	4	

- Molecule 80 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
80	PA	1	Total	Mg	0
			1	1	

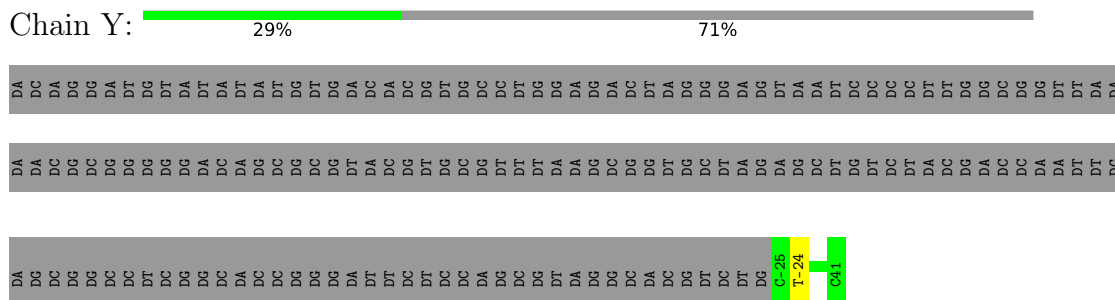
3 Residue-property plots [i](#)

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

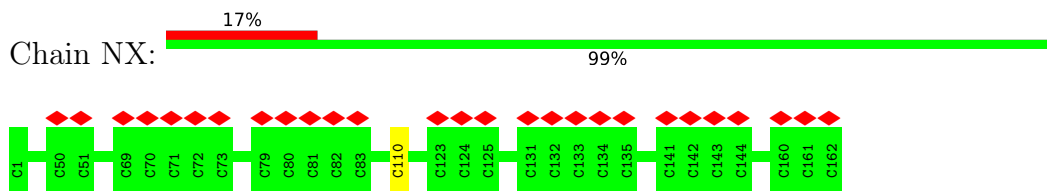
- Molecule 1: DNA (228-mer)



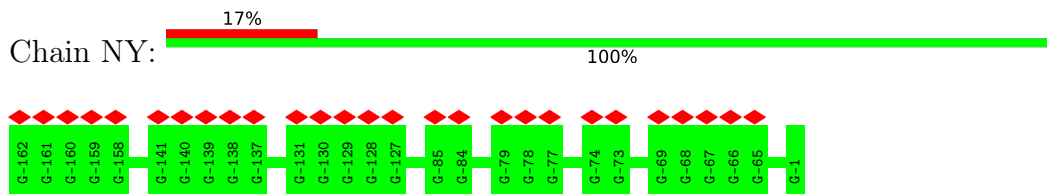
- Molecule 2: DNA (228-mer)



- Molecule 3: DNA (162-mer)



- Molecule 4: DNA (162-mer)



HIS
LYS
HIS
LYS
HIS
LYS
HIS
LYS
HIS
LYS
ASP
SER
LYS
GLU
LYS
ASP
LYS
GLU
PRO
THR
PHE
SER
SER
PRO
ALA
SER
GLY
ARG
SER
ILE
ARG
SER
PRO
SER
LEU
SER
ASP

- Molecule 13: Transcription initiation factor IIE subunit beta



MET
ASP
PRO
SER
LEU
LEU
ARG
GLU
ARG
GLY
LEU
SER
PHE
LYS
LYS
ARG
ALA
LEU
SER
THR
PRO
VAL
VAL
GLN
GLU
LYS
ARG
GLY
SER
PRO
ALA
SER
SER
GLY
GLU
SER
SER
SER
LYS
LYS
LYS
LYS
THR
VAL
GLU
HIS
GLY
GLY
SER
SER
GLY
SER
GLN
LYS
ASN
GLN
LEU
ALA
SER
GLY
VAL
HIS
SER
ASN
GLY
TYR

SER
PHE
ASN
LEU
LYS
ALA
LEU
SER
GLY
GLY
SER
G72
K114
E169
I242
SER
SER
MET
GLN
GLU
SER
GLY
PRO
LYS
LYS
VAL
ALA
PRO
ILE
GLN
ARG
SER
LYS
LYS
ALA
SER
GLN
LYS
LYS
ARG
PHE
LYS
THR
HIS
ASN
GLU
HIS
GLN
LEU
ALA
GLY
VAL
LEU
LYS
ASN
GLY
TYR

SER
ASP
THR
SER
LYS

- Molecule 14: General transcription factor IIF subunit 2



MET
A2
H64
ILE
HIS
ASP
ILE
GLY
GLY
LYS
PRO
ALA
SER
VAL
SER
ALA
SER
PRO
ARG
E60
H229
K230
E238
TYR
ARG
HIS
TYR
GLN
GLY
GLY
GLU
LYS
SER
ASP

- Molecule 15: General transcription factor IIH subunit 1



MET
ALA
THR
SER
GLU
GLU
VAL
LEU
LEU
HIS
ALA
ILE
LYS
LYS
VAL
ARG
GLN
LYS
GLN
ASP
GLY
ALA
TYR
LEU
MET
ALA
GLU
GLU
LYS
TRP
ALA
PRO
GLU
GLY
LYS
ASP
PHE
THR
ILE
SER
HIS
MET
TYR
ALA
ALA
ILE
ASP
LYS
CYS
GLN
LYS
ILE
SER
PRO
GLY
GLU
LYS

ALA
LYS
ILE
GLN
LEU
GLN
LEU
VAL
HIS
ALA
ASP
LYS
THR
THR
ASN
PHE
HIS
PHE
SER
ASN
GLU
SER
THR
ALA
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THR

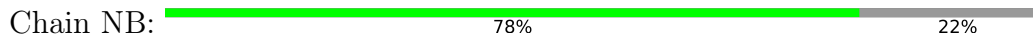
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PRO
GLN
THR
THR
SER
Q226
HIS
TYR
PHE
HIS
ARG
ASP
ARG
LEU
ASN
THR
SER
Q190
SER
Q226
HIS
TYR
PHE
HIS
ARG
ASP
ARG
LEU
ASN
THR
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ALA
SER
ASN
GLN
LEU
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LEU
GLY
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LYS
ASN
SER
SER
SER
THR

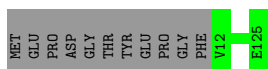
LYS
GLY
LEU
LYS
THR
MET
VAL
SER
SER
GLY
LEU
VAL
LYS
ASN
PRO
LEU
LEU
ASP
THR
ALA
LEU
LEU
GLU
ASP
LYS
PRO
LEU
ASP
GLU
GLY
TYR
GLY
ILE
SER
SER
VAL
SER
VAL
SER
LYS
SER
ALA
SER
ASN
SER
LYS
ILE
LYS
SER
SER
SER
ILE
LYS
THR
E297
K221
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ALA
ALA
GLN
ASN
GLU
GLN
GLN
THR
GLN
SER
SER
PRO
SER

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GLY
ASP
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CYS
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PRO
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VAL
LEU
ARG
ALA
LYS
LYS
GLN
GLN
GLY
TYR
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ASP
LEU
GLY
LYS
ILE
GLU
TYR
ASN
SER
SER
VAL
THR
I372
I389
GLN
SER
LEU
GLN
TYR
ALA
T396
S397
Q398
G443
GLY
THR
GLN
GLM
ALA
ILE
ASN
G451

K547
THR

- Molecule 16: Histone H4





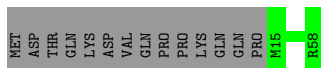
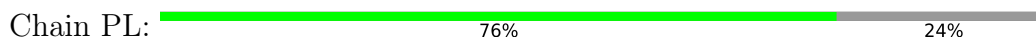
- Molecule 27: DNA-directed RNA polymerases I, II, and III subunit RPABC5



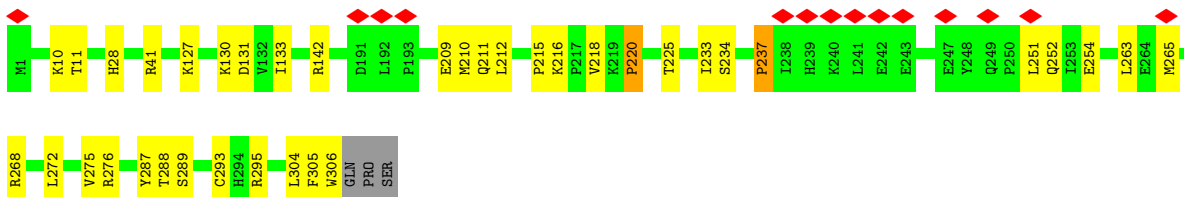
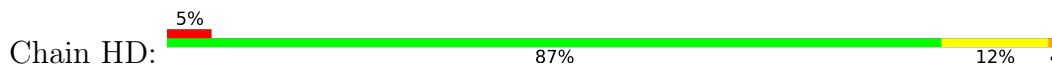
- Molecule 28: RNA_pol_L_2 domain-containing protein



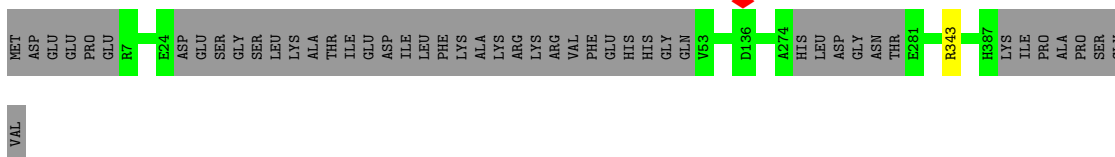
- Molecule 29: RPB12



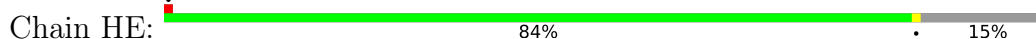
- Molecule 30: CDK-activating kinase assembly factor MAT1

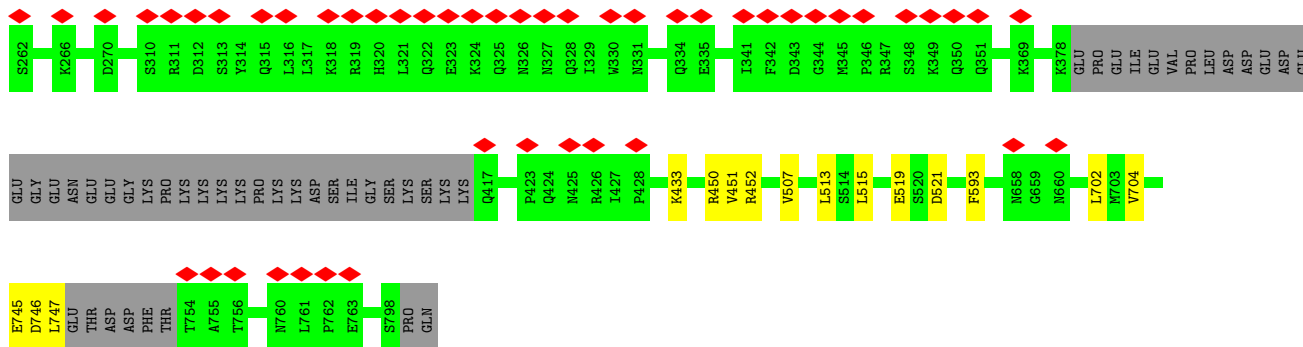


- Molecule 31: General transcription factor IIH subunit 2

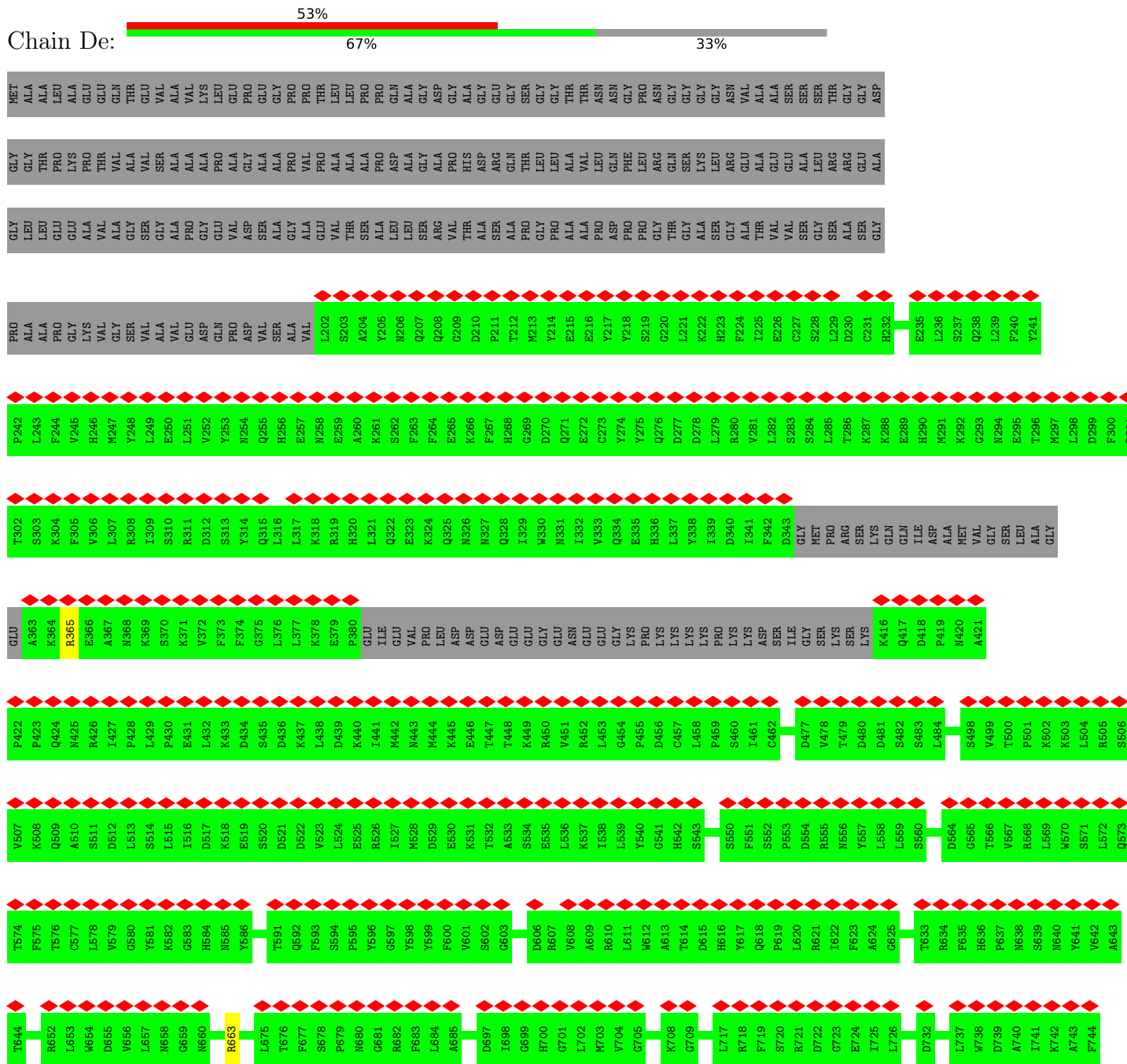


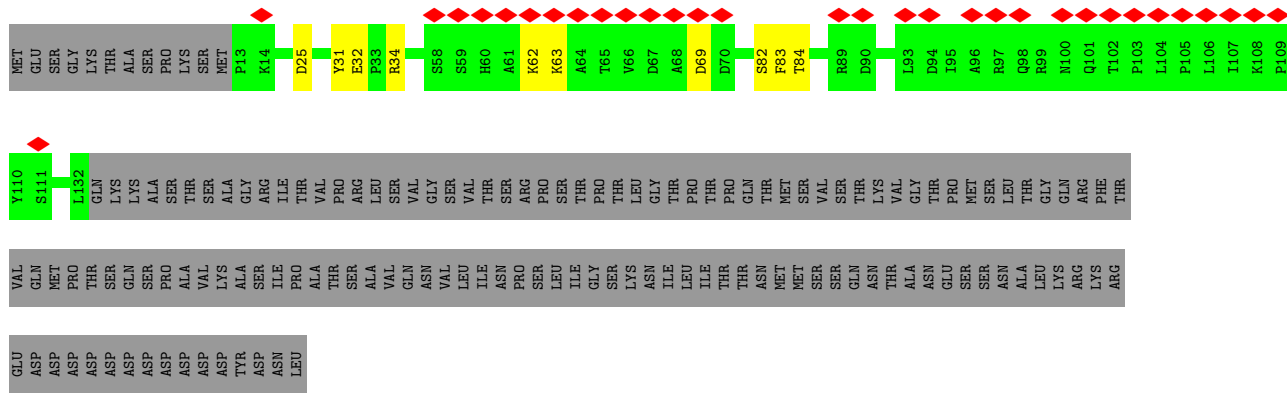
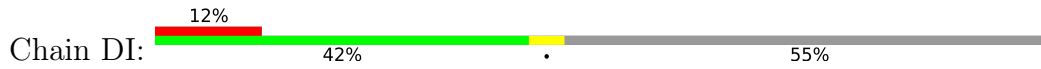
- Molecule 32: General transcription factor IIH subunit 3



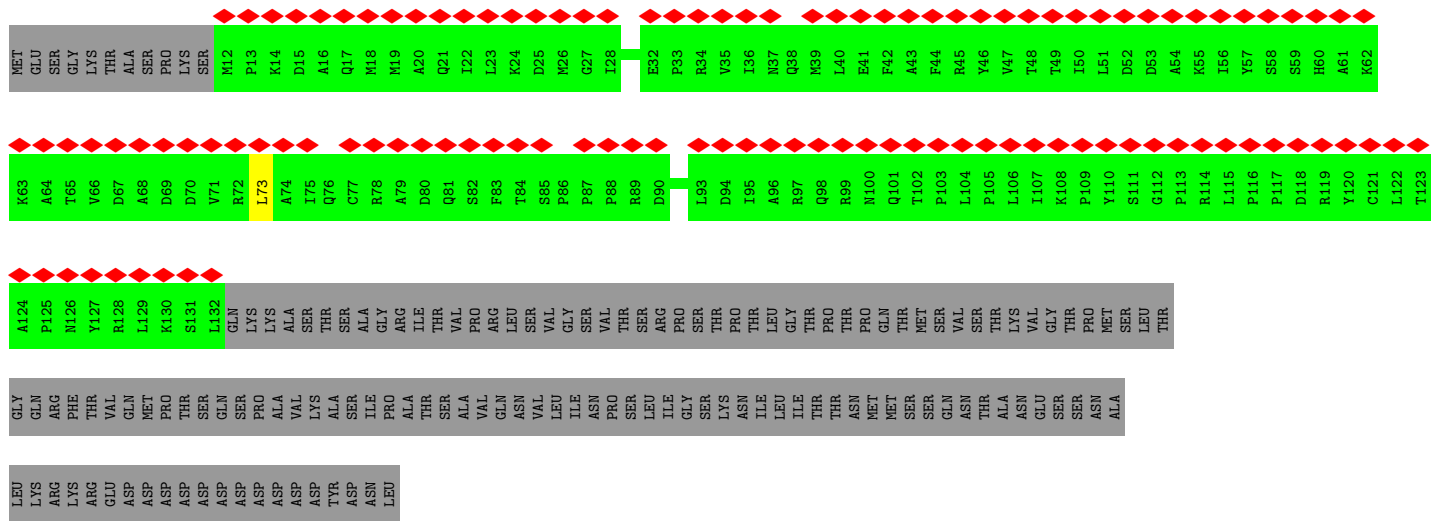


● Molecule 36: Transcription initiation factor TFIID subunit 5

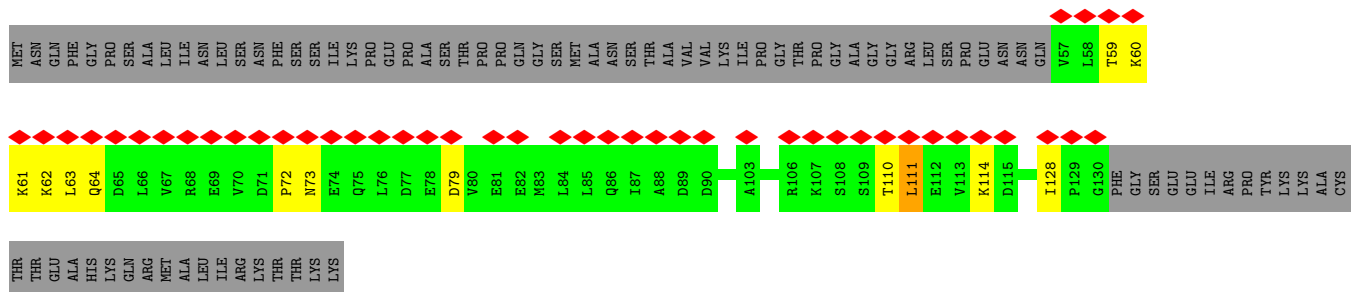
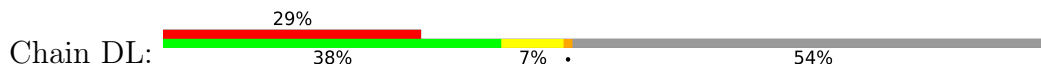


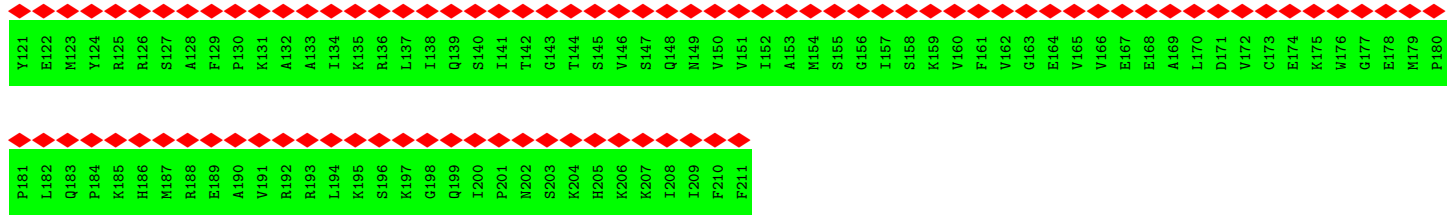


• Molecule 40: Transcription initiation factor TFIID subunit 9

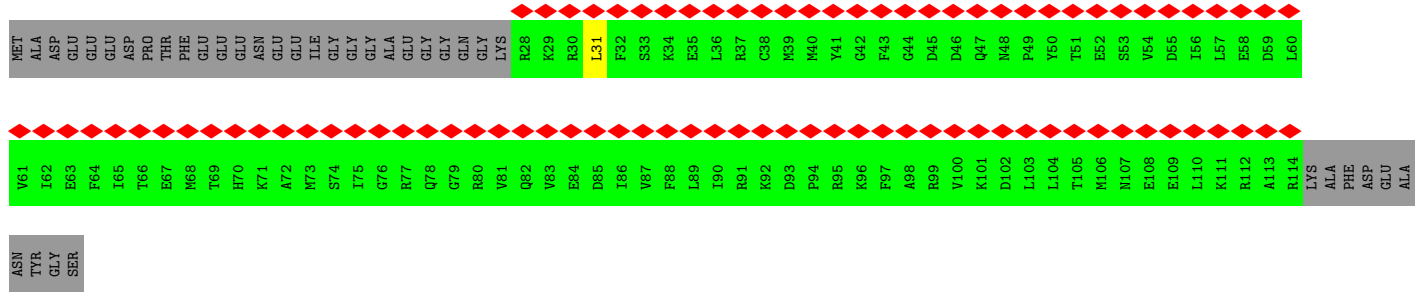
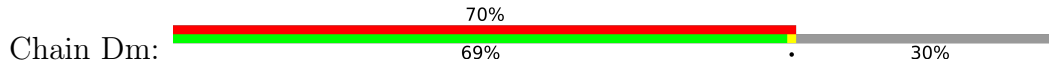


• Molecule 41: Transcription initiation factor TFIID subunit 12

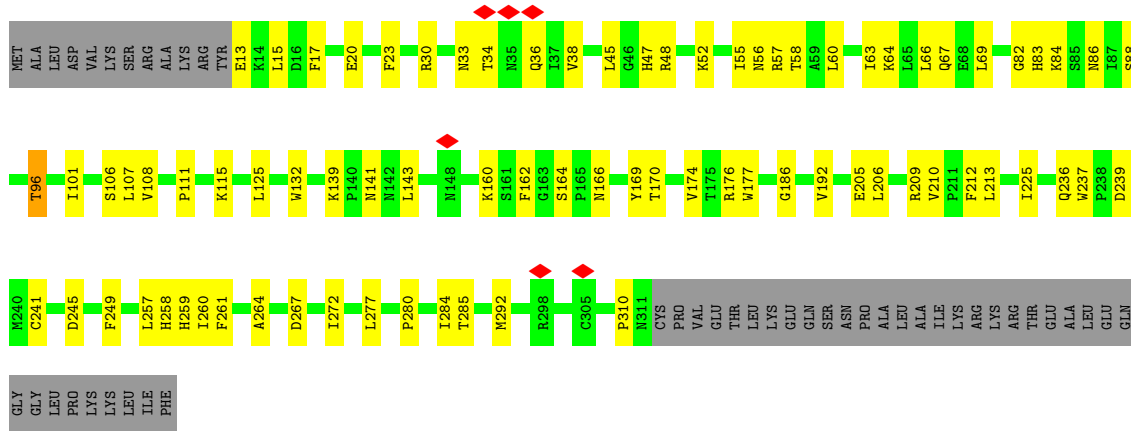




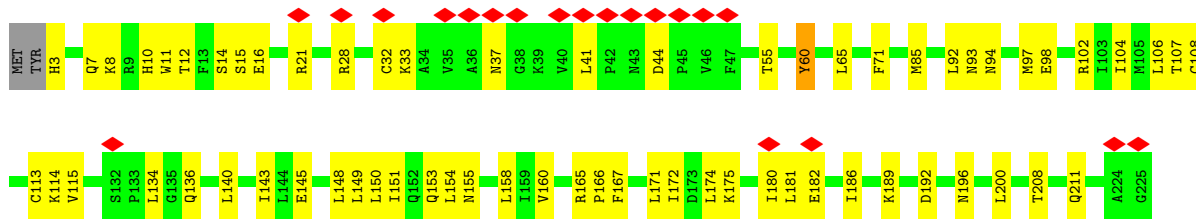
• Molecule 45: Transcription initiation factor TFIID subunit 13

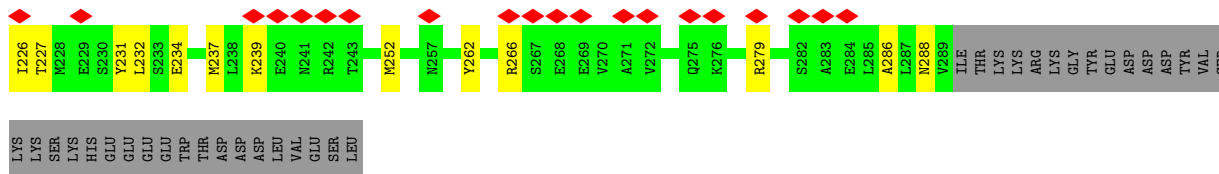


• Molecule 46: Cyclin-dependent kinase 7

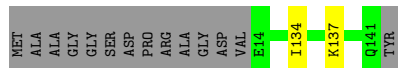


• Molecule 47: Cyclin-H





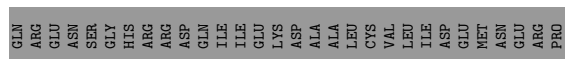
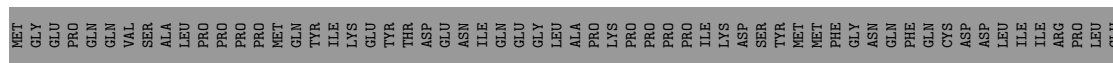
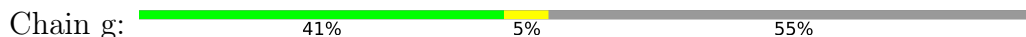
● Molecule 48: DNA-directed RNA polymerase II subunit RPB4



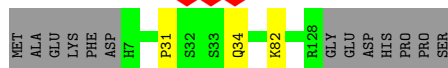
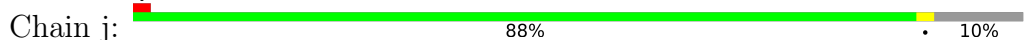
● Molecule 49: DNA-directed RNA polymerase II subunit RPB7



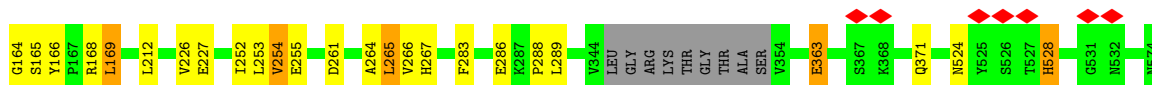
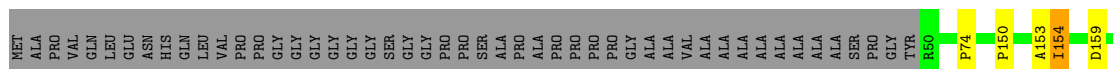
● Molecule 50: Mediator of RNA polymerase II transcription subunit 7



● Molecule 51: Mediator of RNA polymerase II transcription subunit 10

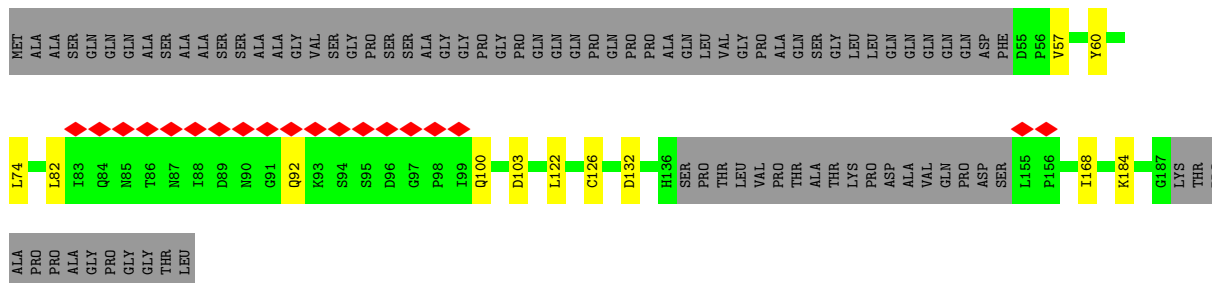


● Molecule 52: Mediator of RNA polymerase II transcription subunit 14

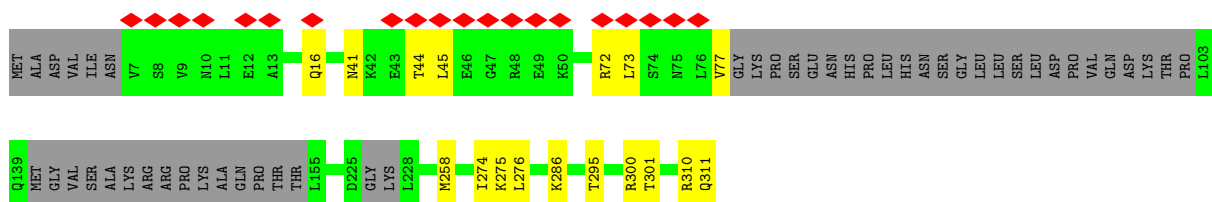
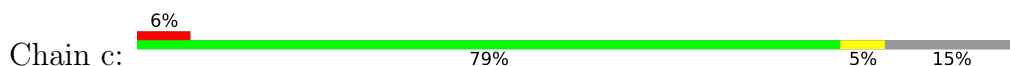


L599
D600

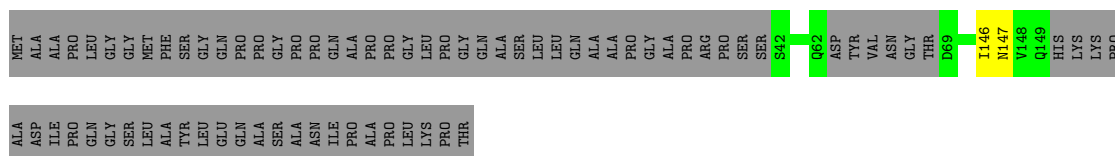
• Molecule 62: Mediator of RNA polymerase II transcription subunit 29



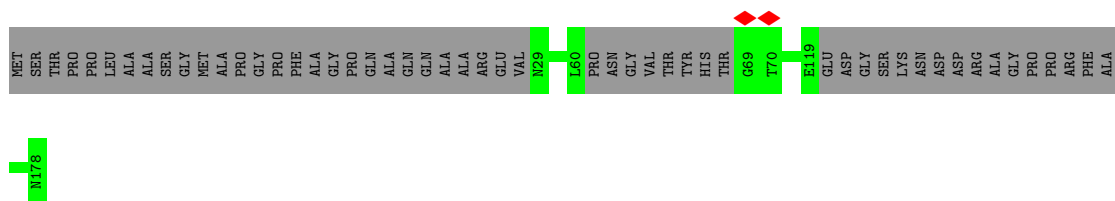
• Molecule 63: Mediator of RNA polymerase II transcription subunit 27



• Molecule 64: Mediator of RNA polymerase II transcription subunit 28

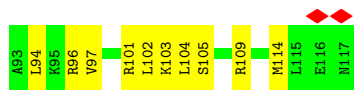


• Molecule 65: Mediator of RNA polymerase II transcription subunit 30

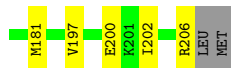
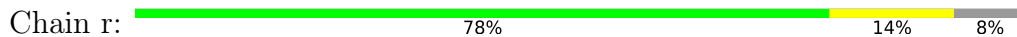


• Molecule 66: Mediator of RNA polymerase II transcription subunit 15

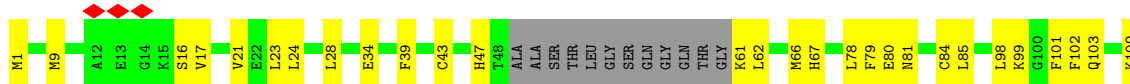




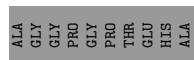
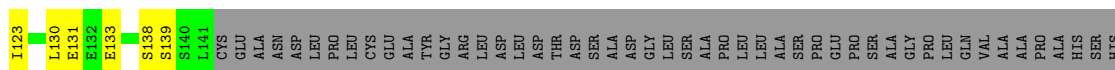
• Molecule 69: Mediator of RNA polymerase II transcription subunit 18



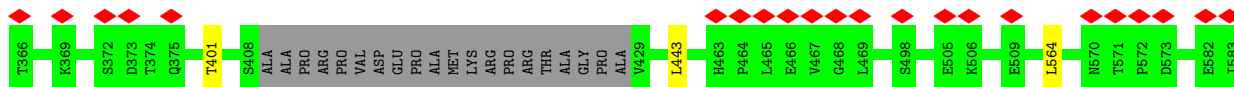
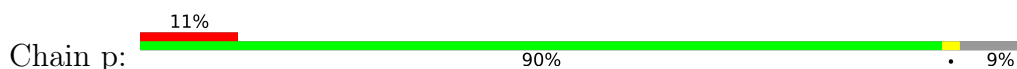
• Molecule 70: Mediator of RNA polymerase II transcription subunit 20

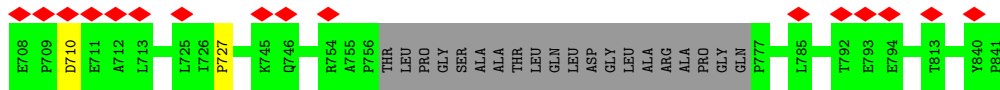
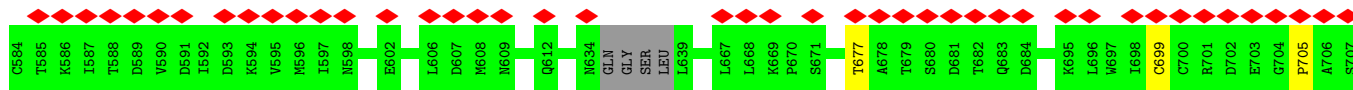


• Molecule 71: Mediator of RNA polymerase II transcription subunit 22

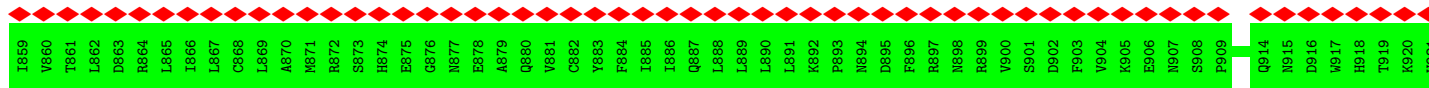
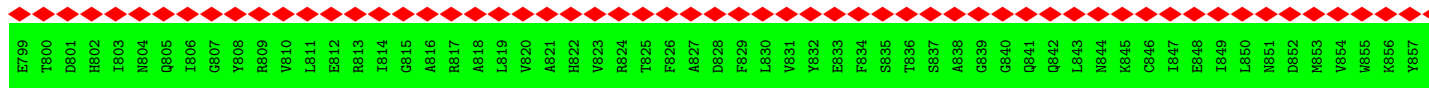
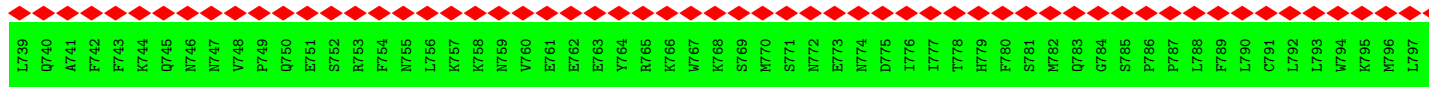
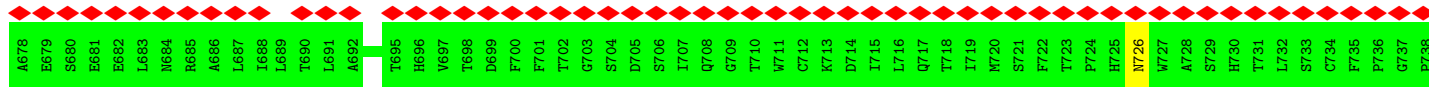
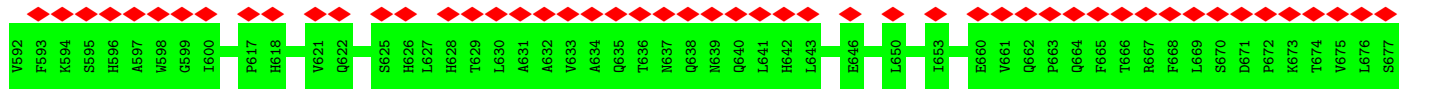
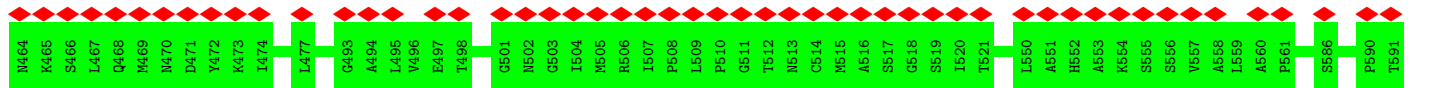
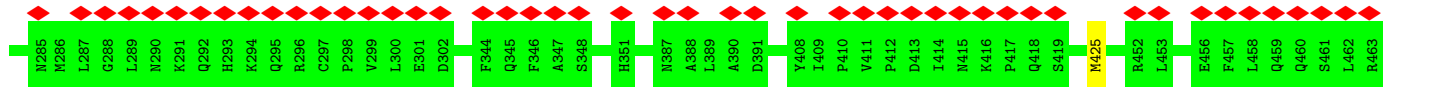
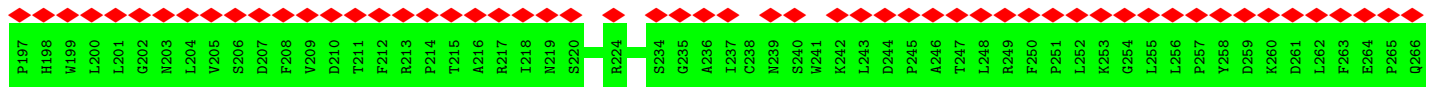
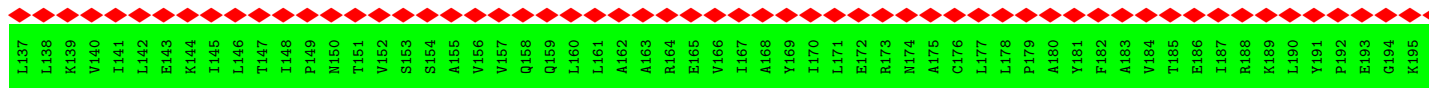
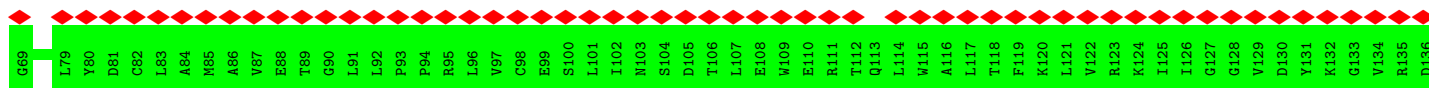
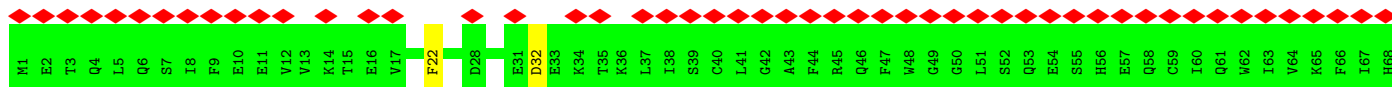


• Molecule 72: Isoform 2 of Mediator of RNA polymerase II transcription subunit 16



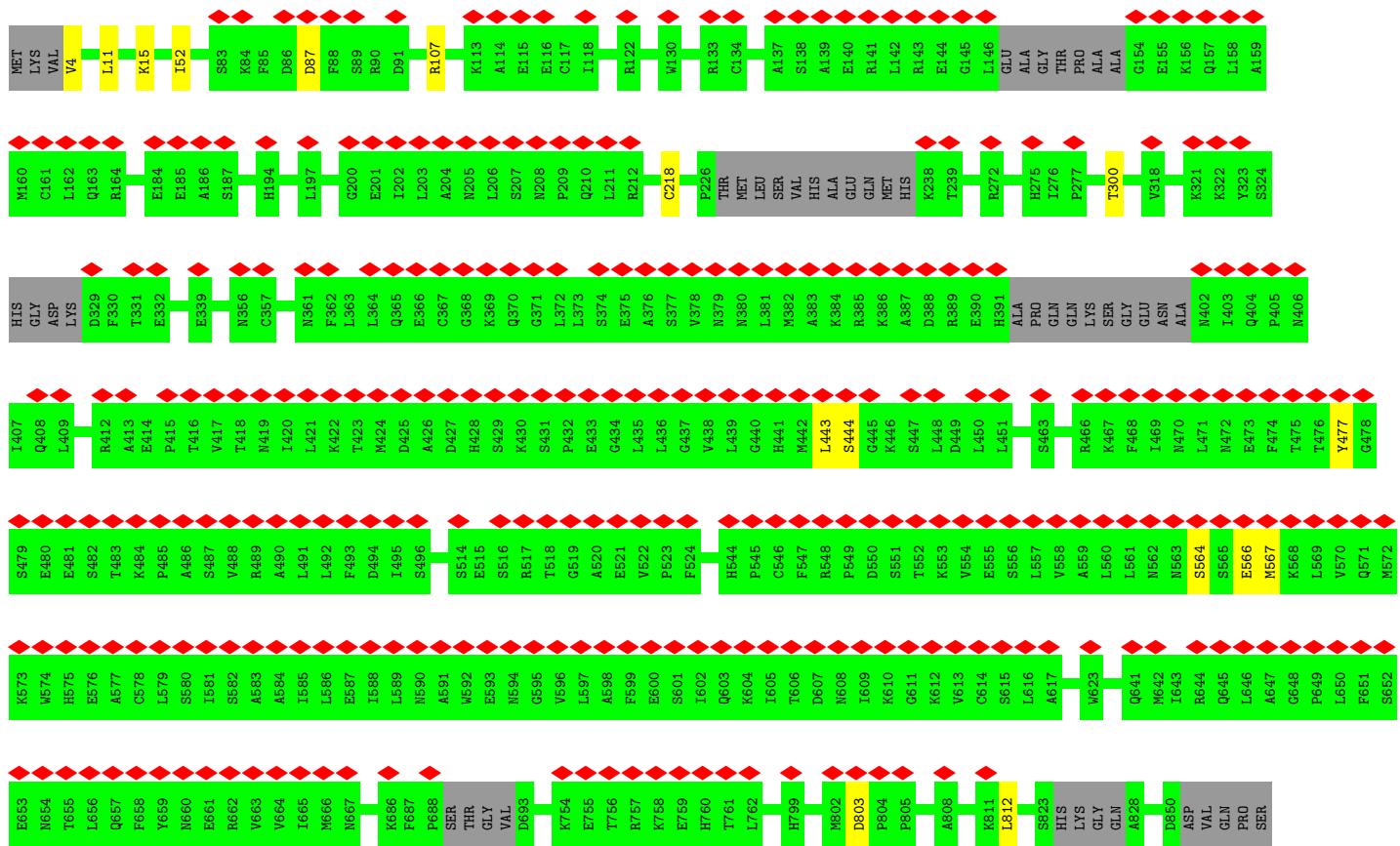
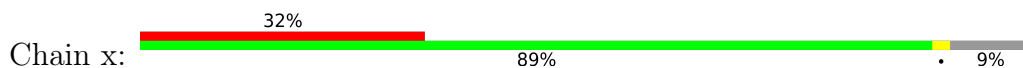


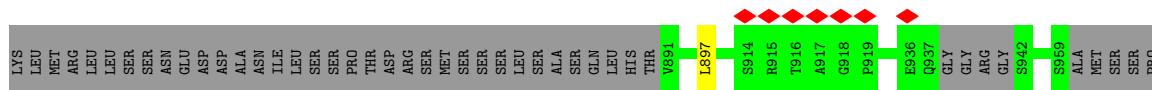
• Molecule 73: Mediator of RNA polymerase II transcription subunit 23



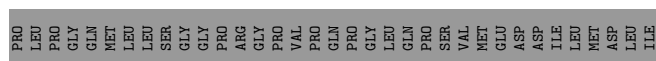
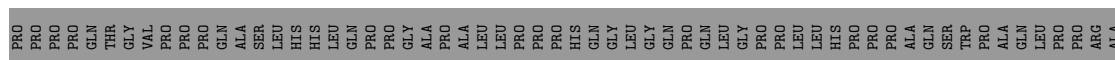
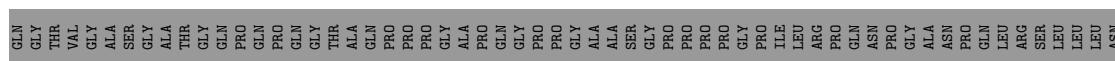
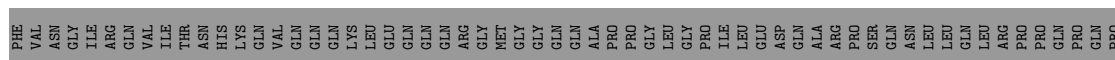
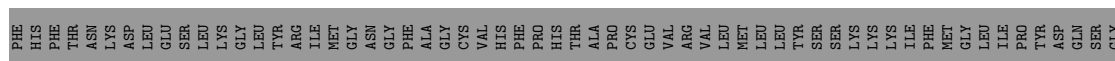
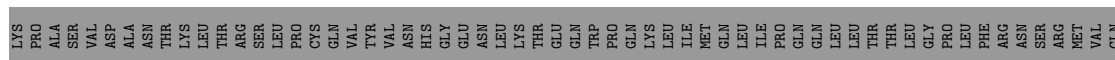
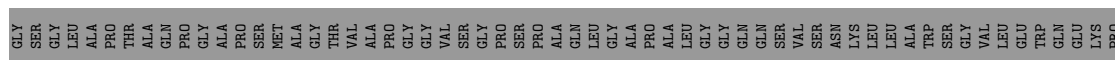
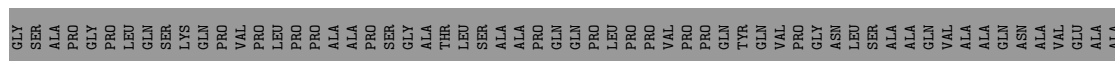


• Molecule 74: Mediator of RNA polymerase II transcription subunit 24

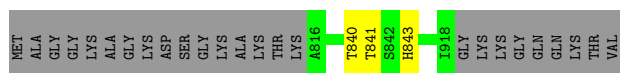
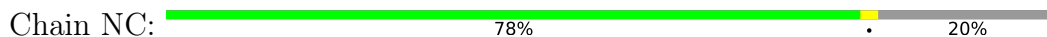




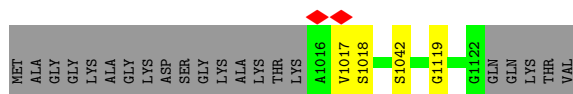
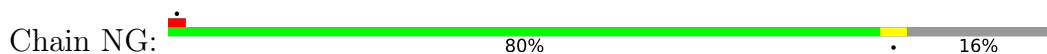
- Molecule 75: Mediator of RNA polymerase II transcription subunit 25



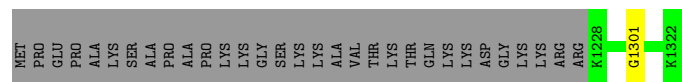
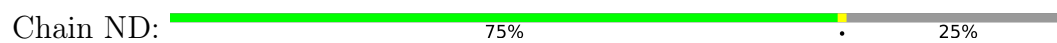
- Molecule 76: HISTONE H2A.Z



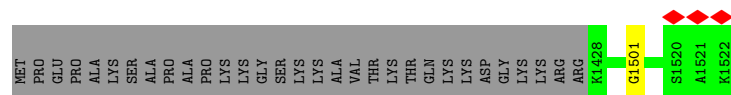
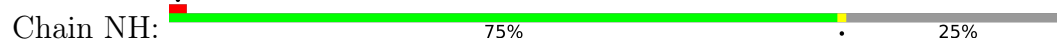
- Molecule 76: HISTONE H2A.Z



• Molecule 77: Histone H2B



• Molecule 77: Histone H2B



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	29473	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.762	Depositor
Minimum map value	-1.277	Depositor
Average map value	0.015	Depositor
Map value standard deviation	0.075	Depositor
Recommended contour level	0.205	Depositor
Map size (\AA)	560.27997, 560.27997, 560.27997	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.3339999, 1.3339999, 1.3339999	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: MG, ZN, SF4

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	X	0.63	5/1561 (0.3%)	0.83	1/2411 (0.0%)
2	Y	0.67	1/1516 (0.1%)	0.92	0/2334
3	NX	0.34	1/3401 (0.0%)	0.82	0/5180
4	NY	0.38	0/4046	0.76	0/6310
5	BA	0.25	0/1983	0.41	0/2679
6	DA	0.51	0/4679	0.62	1/6320 (0.0%)
7	EA	0.34	0/1560	0.51	0/2097
8	FA	0.25	0/1167	0.41	0/1576
9	HA	0.26	0/5875	0.41	0/7955
10	NA	0.68	0/497	0.82	1/693 (0.1%)
10	NE	0.76	0/510	0.88	0/710
11	PA	0.28	0/11851	0.44	0/16014
12	DB	0.47	1/7993 (0.0%)	0.61	0/10836
13	EB	0.28	0/1427	0.46	0/1916
14	FB	0.26	0/1817	0.41	0/2445
15	HB	0.25	0/2210	0.40	0/2975
16	NB	0.76	0/390	0.84	0/539
16	NF	0.85	0/420	0.97	1/581 (0.2%)
17	PB	0.25	0/9257	0.42	0/12493
18	HC	0.28	0/3230	0.43	0/4376
19	DO	0.25	0/816	0.43	0/1105
20	DP	0.25	0/1448	0.42	0/1948
21	DQ	0.25	0/945	0.42	0/1274
22	PC	0.24	0/2102	0.42	0/2857
23	PE	0.25	0/1752	0.41	0/2366
24	PF	0.28	0/646	0.42	0/871
25	PH	0.24	0/1207	0.43	0/1628
26	PI	0.25	0/949	0.44	0/1284
27	PJ	0.26	0/516	0.41	0/696
28	PK	0.26	0/939	0.40	0/1271
29	PL	0.26	0/378	0.41	0/500
30	HD	0.50	0/2436	0.67	2/3286 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
31	HG	0.25	0/2793	0.42	0/3780
32	HE	0.31	0/2103	0.46	0/2846
33	HF	0.27	0/529	0.49	1/714 (0.1%)
34	HH	0.25	0/4994	0.41	0/6745
35	DD	0.42	0/1343	0.52	0/1795
35	Dd	0.29	0/1321	0.49	0/1772
36	DE	0.39	0/4469	0.56	0/6050
36	De	0.33	0/4433	0.55	0/6004
37	DF	0.51	0/3167	0.69	1/4303 (0.0%)
37	Df	0.42	0/3140	0.63	0/4268
38	DG	0.52	0/1199	0.63	0/1612
39	DH	0.37	0/1673	0.58	1/2285 (0.0%)
40	DI	0.43	0/981	0.58	0/1332
40	Di	0.31	0/989	0.48	0/1343
41	DL	0.44	0/613	0.65	1/829 (0.1%)
41	DI	0.41	0/888	0.54	1/1194 (0.1%)
42	Dc	0.40	0/1035	0.54	0/1406
43	DJ	0.30	0/736	0.49	1/998 (0.1%)
43	Dj	0.30	0/775	0.52	0/1049
44	Dk	0.31	0/799	0.48	0/1070
45	Dm	0.32	0/733	0.52	0/977
46	HI	0.67	0/2433	0.96	0/3302
47	HJ	0.74	0/2356	0.97	1/3185 (0.0%)
48	PD	0.29	0/1064	0.44	0/1428
49	PG	0.27	0/1382	0.44	0/1874
50	g	0.57	0/911	0.86	2/1219 (0.2%)
51	j	0.37	0/849	0.54	0/1150
52	n	0.36	0/7901	0.57	14/10731 (0.1%)
53	s	0.64	0/741	0.76	1/1002 (0.1%)
54	u	0.54	0/895	0.75	2/1215 (0.2%)
55	a	0.62	0/3507	0.78	1/4760 (0.0%)
56	d	0.62	0/1281	0.65	0/1718
57	f	0.56	0/1402	0.68	1/1905 (0.1%)
58	i	0.68	0/612	0.76	1/815 (0.1%)
59	m	0.28	0/1010	0.38	0/1359
60	q	0.49	1/4456 (0.0%)	0.56	0/6019
61	z	0.64	0/781	0.86	0/1067
62	b	0.51	0/911	0.63	0/1229
63	c	0.43	0/2172	0.58	1/2935 (0.0%)
64	e	0.29	0/840	0.40	0/1128
65	l	0.26	0/1048	0.43	0/1405
66	o	0.41	0/1256	0.65	0/1724
67	h	0.63	0/1485	0.73	1/2008 (0.0%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
68	k	0.66	0/885	0.67	0/1190
69	r	0.60	0/1565	0.73	0/2106
70	t	0.70	0/1530	0.87	0/2066
71	v	0.66	0/1092	0.74	0/1468
72	p	0.65	0/6116	0.69	0/8311
73	w	0.57	0/11056	0.60	0/15023
74	x	0.58	0/7191	0.64	0/9728
75	y	0.57	0/1645	0.64	0/2240
76	NC	0.80	0/505	0.86	0/700
76	NG	0.68	0/523	0.90	1/724 (0.1%)
77	ND	0.76	0/470	0.83	0/654
77	NH	0.65	0/470	0.85	0/654
All	All	0.45	9/190578 (0.0%)	0.60	38/259940 (0.0%)

The worst 5 of 9 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
60	q	452	ALA	C-N	5.60	1.47	1.34
1	X	3	DG	O3'-P	5.58	1.67	1.61
1	X	17	DC	O3'-P	5.55	1.67	1.61
1	X	19	DA	O3'-P	5.46	1.67	1.61
1	X	-33	DC	O3'-P	5.28	1.67	1.61

The worst 5 of 38 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
50	g	128	PRO	N-CA-C	-7.63	92.27	112.10
50	g	128	PRO	CA-N-CD	-7.39	101.15	111.50
52	n	1351	PRO	N-CA-CB	7.36	112.14	103.30
52	n	1343	PRO	N-CA-CB	7.25	112.01	103.30
52	n	1355	PRO	N-CA-CB	6.89	111.57	103.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [\(i\)](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles

5.3.1 Protein backbone

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	
5	BA	248/316 (78%)	246 (99%)	2 (1%)	0	100	100
6	DA	542/1872 (29%)	524 (97%)	15 (3%)	3 (1%)	25	64
7	EA	185/439 (42%)	183 (99%)	1 (0%)	1 (0%)	29	68
8	FA	134/517 (26%)	129 (96%)	5 (4%)	0	100	100
9	HA	710/760 (93%)	682 (96%)	28 (4%)	0	100	100
10	NA	98/136 (72%)	94 (96%)	2 (2%)	2 (2%)	7	40
10	NE	101/136 (74%)	96 (95%)	3 (3%)	2 (2%)	7	40
11	PA	1457/1970 (74%)	1406 (96%)	47 (3%)	4 (0%)	41	76
12	DB	959/1199 (80%)	910 (95%)	49 (5%)	0	100	100
13	EB	169/291 (58%)	164 (97%)	5 (3%)	0	100	100
14	FB	218/249 (88%)	213 (98%)	4 (2%)	1 (0%)	29	68
15	HB	253/548 (46%)	245 (97%)	8 (3%)	0	100	100
16	NB	78/103 (76%)	78 (100%)	0	0	100	100
16	NF	84/103 (82%)	77 (92%)	4 (5%)	3 (4%)	3	29
17	PB	1130/1174 (96%)	1093 (97%)	37 (3%)	0	100	100
18	HC	380/462 (82%)	363 (96%)	17 (4%)	0	100	100
19	DO	97/109 (89%)	95 (98%)	2 (2%)	0	100	100
20	DP	177/339 (52%)	175 (99%)	2 (1%)	0	100	100
21	DQ	109/376 (29%)	102 (94%)	7 (6%)	0	100	100
22	PC	253/275 (92%)	241 (95%)	12 (5%)	0	100	100
23	PE	207/210 (99%)	203 (98%)	4 (2%)	0	100	100
24	PF	77/127 (61%)	76 (99%)	1 (1%)	0	100	100
25	PH	146/150 (97%)	143 (98%)	3 (2%)	0	100	100
26	PI	112/125 (90%)	104 (93%)	8 (7%)	0	100	100
27	PJ	62/67 (92%)	60 (97%)	2 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	PK	113/117 (97%)	112 (99%)	1 (1%)	0	100	100
29	PL	42/58 (72%)	40 (95%)	2 (5%)	0	100	100
30	HD	304/309 (98%)	265 (87%)	29 (10%)	10 (3%)	4	30
31	HG	341/395 (86%)	329 (96%)	12 (4%)	0	100	100
32	HE	259/308 (84%)	253 (98%)	6 (2%)	0	100	100
33	HF	64/71 (90%)	62 (97%)	2 (3%)	0	100	100
34	HH	601/782 (77%)	573 (95%)	27 (4%)	1 (0%)	47	80
35	DD	153/1085 (14%)	146 (95%)	5 (3%)	2 (1%)	12	48
35	Dd	154/1085 (14%)	150 (97%)	4 (3%)	0	100	100
36	DE	540/800 (68%)	506 (94%)	32 (6%)	2 (0%)	34	71
36	De	531/800 (66%)	484 (91%)	47 (9%)	0	100	100
37	DF	404/677 (60%)	377 (93%)	20 (5%)	7 (2%)	9	44
37	Df	399/677 (59%)	378 (95%)	20 (5%)	1 (0%)	41	76
38	DG	139/349 (40%)	135 (97%)	4 (3%)	0	100	100
39	DH	207/310 (67%)	191 (92%)	12 (6%)	4 (2%)	8	41
40	DI	118/264 (45%)	113 (96%)	4 (3%)	1 (1%)	19	59
40	Di	119/264 (45%)	115 (97%)	4 (3%)	0	100	100
41	DL	72/161 (45%)	62 (86%)	6 (8%)	4 (6%)	2	21
41	Dl	105/161 (65%)	101 (96%)	4 (4%)	0	100	100
42	Dc	125/929 (14%)	116 (93%)	9 (7%)	0	100	100
43	DJ	86/218 (39%)	82 (95%)	4 (5%)	0	100	100
43	Dj	91/218 (42%)	89 (98%)	2 (2%)	0	100	100
44	Dk	96/211 (46%)	91 (95%)	5 (5%)	0	100	100
45	Dm	85/124 (68%)	79 (93%)	6 (7%)	0	100	100
46	HI	297/346 (86%)	265 (89%)	20 (7%)	12 (4%)	3	26
47	HJ	285/323 (88%)	268 (94%)	14 (5%)	3 (1%)	14	52
48	PD	126/142 (89%)	122 (97%)	4 (3%)	0	100	100
49	PG	169/172 (98%)	166 (98%)	3 (2%)	0	100	100
50	g	104/233 (45%)	99 (95%)	4 (4%)	1 (1%)	15	53
51	j	120/135 (89%)	117 (98%)	1 (1%)	2 (2%)	9	44
52	n	993/1454 (68%)	894 (90%)	80 (8%)	19 (2%)	8	41

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	s	91/244 (37%)	81 (89%)	8 (9%)	2 (2%)	6	38
54	u	113/144 (78%)	104 (92%)	5 (4%)	4 (4%)	3	29
55	a	430/1581 (27%)	387 (90%)	38 (9%)	5 (1%)	13	50
56	d	154/270 (57%)	143 (93%)	9 (6%)	2 (1%)	12	48
57	f	163/246 (66%)	150 (92%)	12 (7%)	1 (1%)	25	64
58	i	69/146 (47%)	65 (94%)	2 (3%)	2 (3%)	4	33
59	m	110/131 (84%)	106 (96%)	4 (4%)	0	100	100
60	q	543/651 (83%)	486 (90%)	50 (9%)	7 (1%)	12	48
61	z	93/600 (16%)	83 (89%)	7 (8%)	3 (3%)	4	31
62	b	111/200 (56%)	109 (98%)	1 (1%)	1 (1%)	17	56
63	c	255/311 (82%)	239 (94%)	15 (6%)	1 (0%)	34	71
64	e	98/178 (55%)	92 (94%)	4 (4%)	2 (2%)	7	40
65	l	120/178 (67%)	115 (96%)	5 (4%)	0	100	100
66	o	152/788 (19%)	135 (89%)	13 (9%)	4 (3%)	5	35
67	h	188/268 (70%)	165 (88%)	15 (8%)	8 (4%)	2	25
68	k	110/117 (94%)	96 (87%)	12 (11%)	2 (2%)	8	42
69	r	190/208 (91%)	180 (95%)	6 (3%)	4 (2%)	7	39
70	t	189/212 (89%)	169 (89%)	16 (8%)	4 (2%)	7	39
71	v	132/200 (66%)	116 (88%)	10 (8%)	6 (4%)	2	25
72	p	756/841 (90%)	707 (94%)	47 (6%)	2 (0%)	41	76
73	w	1332/1368 (97%)	1262 (95%)	66 (5%)	4 (0%)	41	76
74	x	877/989 (89%)	828 (94%)	44 (5%)	5 (1%)	25	64
75	y	206/747 (28%)	196 (95%)	9 (4%)	1 (0%)	29	68
76	NC	101/128 (79%)	93 (92%)	5 (5%)	3 (3%)	4	32
76	NG	105/128 (82%)	94 (90%)	8 (8%)	3 (3%)	4	33
77	ND	93/126 (74%)	91 (98%)	1 (1%)	1 (1%)	14	52
77	NH	93/126 (74%)	89 (96%)	3 (3%)	1 (1%)	14	52
All	All	22102/36357 (61%)	20863 (94%)	1076 (5%)	163 (1%)	26	62

5 of 163 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	DA	498	PRO

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Mol	Chain	Res	Type
6	DA	1158	SER
10	NA	534	ARG
11	PA	1666	PRO
14	FB	229	HIS

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	
5	BA	215/268 (80%)	215 (100%)	0	100	100
6	DA	495/1665 (30%)	460 (93%)	35 (7%)	14	41
7	EA	169/373 (45%)	167 (99%)	2 (1%)	71	83
8	FA	121/448 (27%)	119 (98%)	2 (2%)	60	78
9	HA	624/664 (94%)	622 (100%)	2 (0%)	92	95
11	PA	1302/1749 (74%)	1294 (99%)	8 (1%)	86	92
12	DB	876/1083 (81%)	859 (98%)	17 (2%)	57	74
13	EB	154/261 (59%)	153 (99%)	1 (1%)	86	92
14	FB	196/218 (90%)	195 (100%)	1 (0%)	88	93
15	HB	241/484 (50%)	241 (100%)	0	100	100
17	PB	994/1027 (97%)	992 (100%)	2 (0%)	93	96
18	HC	342/399 (86%)	340 (99%)	2 (1%)	86	92
19	DO	90/98 (92%)	88 (98%)	2 (2%)	52	70
20	DP	154/293 (53%)	154 (100%)	0	100	100
21	DQ	105/324 (32%)	105 (100%)	0	100	100
22	PC	234/252 (93%)	234 (100%)	0	100	100
23	PE	191/192 (100%)	191 (100%)	0	100	100
24	PF	69/111 (62%)	68 (99%)	1 (1%)	67	80
25	PH	129/131 (98%)	129 (100%)	0	100	100
26	PI	103/112 (92%)	103 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
27	PJ	53/56 (95%)	53 (100%)	0	100	100
28	PK	104/106 (98%)	102 (98%)	2 (2%)	57	74
29	PL	41/55 (74%)	41 (100%)	0	100	100
30	HD	251/283 (89%)	223 (89%)	28 (11%)	6	25
31	HG	311/352 (88%)	310 (100%)	1 (0%)	92	95
32	HE	234/272 (86%)	230 (98%)	4 (2%)	60	78
33	HF	59/64 (92%)	59 (100%)	0	100	100
34	HH	536/688 (78%)	531 (99%)	5 (1%)	78	88
35	DD	144/815 (18%)	135 (94%)	9 (6%)	18	45
35	Dd	146/815 (18%)	146 (100%)	0	100	100
36	DE	478/657 (73%)	465 (97%)	13 (3%)	44	66
36	De	475/657 (72%)	473 (100%)	2 (0%)	91	94
37	DF	324/574 (56%)	296 (91%)	28 (9%)	10	35
37	Df	322/574 (56%)	314 (98%)	8 (2%)	47	68
38	DG	133/322 (41%)	125 (94%)	8 (6%)	19	46
39	DH	181/270 (67%)	172 (95%)	9 (5%)	24	51
40	DI	106/235 (45%)	97 (92%)	9 (8%)	10	36
40	Di	107/235 (46%)	106 (99%)	1 (1%)	78	88
41	DL	69/141 (49%)	60 (87%)	9 (13%)	4	21
41	DI	98/141 (70%)	98 (100%)	0	100	100
42	Dc	113/833 (14%)	111 (98%)	2 (2%)	59	76
43	DJ	79/154 (51%)	78 (99%)	1 (1%)	69	82
43	Dj	83/154 (54%)	83 (100%)	0	100	100
44	Dk	87/182 (48%)	87 (100%)	0	100	100
45	Dm	80/106 (76%)	79 (99%)	1 (1%)	69	82
46	HI	258/298 (87%)	190 (74%)	68 (26%)	0	3
47	HJ	252/296 (85%)	177 (70%)	75 (30%)	0	2
48	PD	118/126 (94%)	116 (98%)	2 (2%)	60	78
49	PG	152/153 (99%)	150 (99%)	2 (1%)	69	82
50	g	102/216 (47%)	93 (91%)	9 (9%)	10	34
51	j	66/124 (53%)	65 (98%)	1 (2%)	65	79

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
52	n	807/1271 (64%)	784 (97%)	23 (3%)	42	64
53	s	83/208 (40%)	73 (88%)	10 (12%)	5	23
54	u	95/119 (80%)	92 (97%)	3 (3%)	39	62
55	a	393/1391 (28%)	318 (81%)	75 (19%)	1	9
56	d	139/230 (60%)	95 (68%)	44 (32%)	0	2
57	f	149/223 (67%)	132 (89%)	17 (11%)	5	24
58	i	71/133 (53%)	60 (84%)	11 (16%)	2	16
59	m	102/115 (89%)	101 (99%)	1 (1%)	76	86
60	q	491/577 (85%)	414 (84%)	77 (16%)	2	16
61	z	89/512 (17%)	76 (85%)	13 (15%)	3	18
62	b	102/163 (63%)	91 (89%)	11 (11%)	6	26
63	c	238/280 (85%)	223 (94%)	15 (6%)	18	45
64	e	94/152 (62%)	94 (100%)	0	100	100
65	l	116/155 (75%)	116 (100%)	0	100	100
66	o	141/697 (20%)	138 (98%)	3 (2%)	53	71
67	h	161/225 (72%)	128 (80%)	33 (20%)	1	7
68	k	94/98 (96%)	49 (52%)	45 (48%)	0	0
69	r	169/183 (92%)	142 (84%)	27 (16%)	2	15
70	t	166/178 (93%)	128 (77%)	38 (23%)	1	5
71	v	122/173 (70%)	87 (71%)	35 (29%)	0	3
72	p	681/736 (92%)	670 (98%)	11 (2%)	62	79
73	w	1203/1232 (98%)	1200 (100%)	3 (0%)	93	96
74	x	789/864 (91%)	777 (98%)	12 (2%)	65	79
75	y	175/601 (29%)	172 (98%)	3 (2%)	60	78
All	All	19036/30622 (62%)	18154 (95%)	882 (5%)	31	53

5 of 882 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
55	a	373	CYS
60	q	109	MET
74	x	897	LEU
70	t	84	CYS
55	a	441	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 254 such sidechains are listed below:

Mol	Chain	Res	Type
54	u	86	GLN
72	p	751	GLN
58	i	117	GLN
72	p	598	ASN
73	w	1134	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 21 ligands modelled in this entry, 20 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
79	SF4	HA	1000	9	0,12,12	-	-	-		

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
79	SF4	HA	1000	9	-	-	0/6/5/5

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.

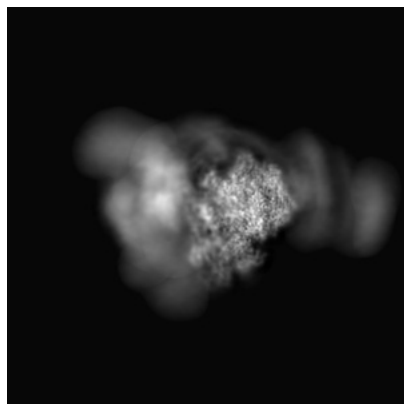
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-34360. These allow visual inspection of the internal detail of the map and identification of artifacts.

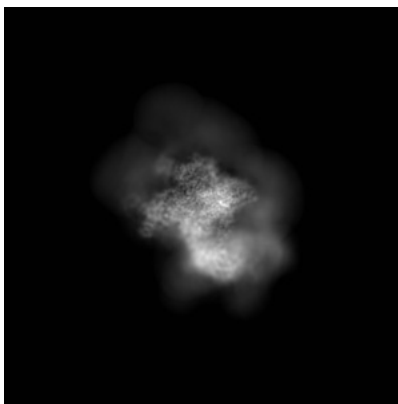
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

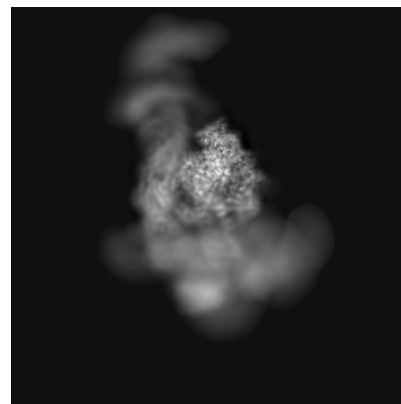
6.1.1 Primary map



X

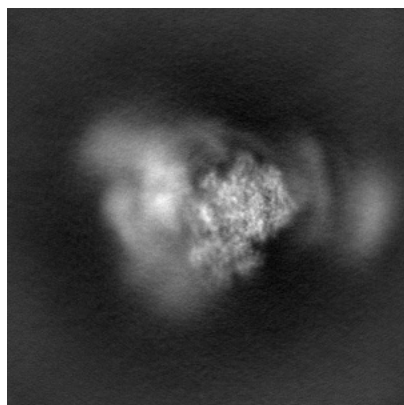


Y

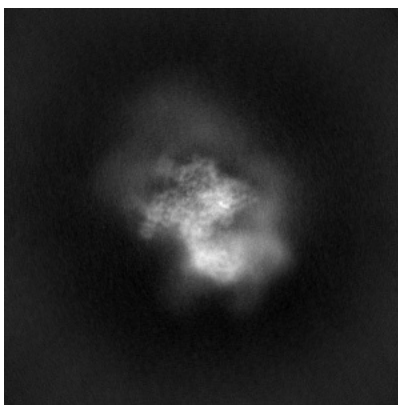


Z

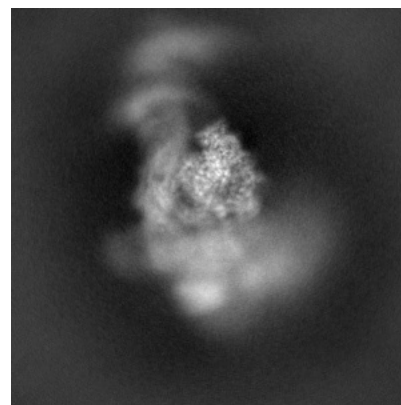
6.1.2 Raw map



X



Y

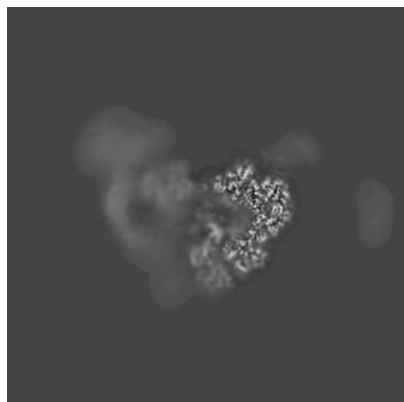


Z

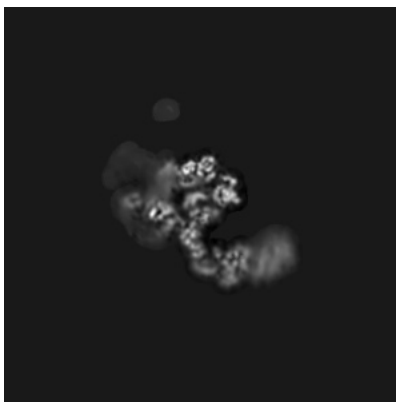
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

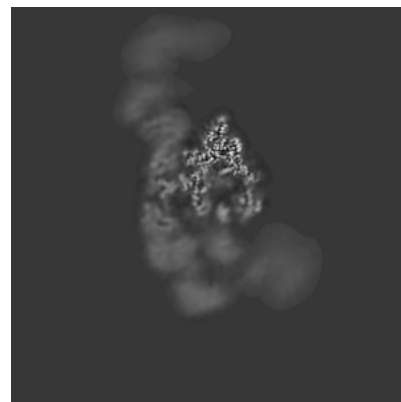
6.2.1 Primary map



X Index: 210

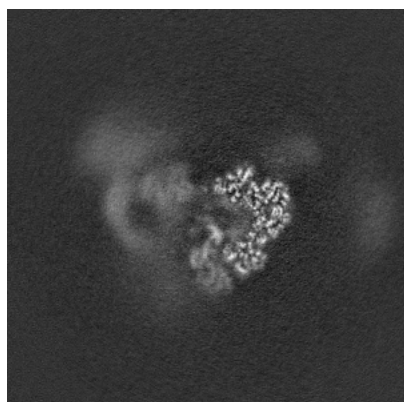


Y Index: 210

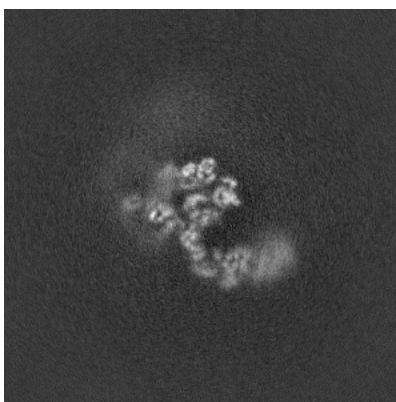


Z Index: 210

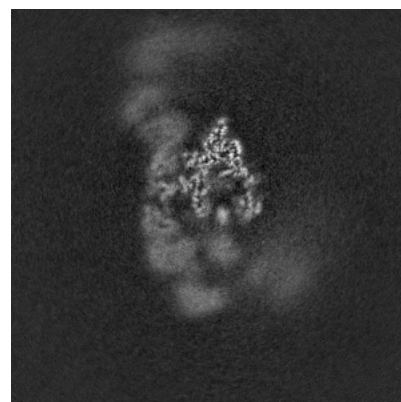
6.2.2 Raw map



X Index: 210



Y Index: 210

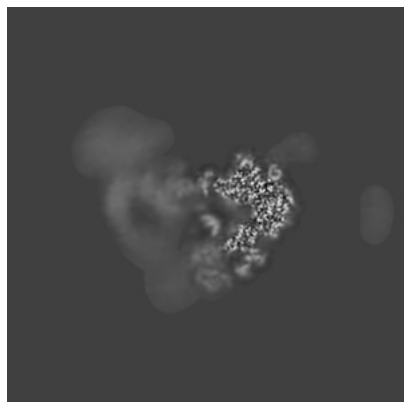


Z Index: 210

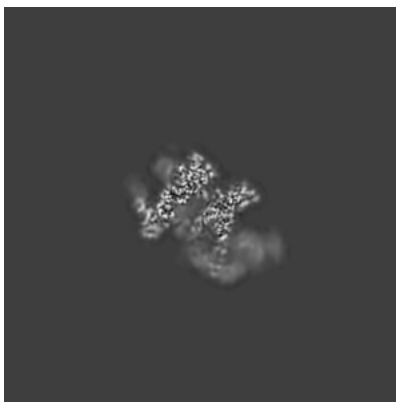
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

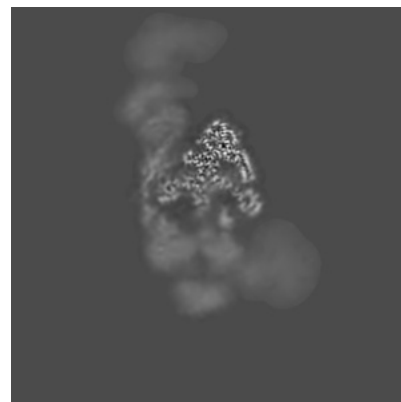
6.3.1 Primary map



X Index: 215

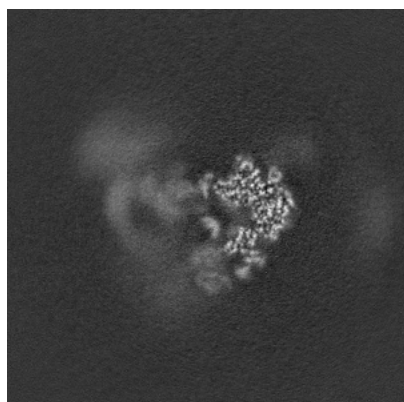


Y Index: 246

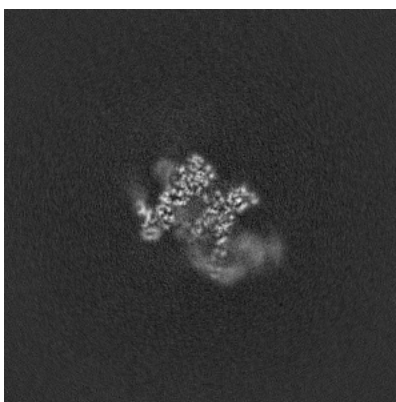


Z Index: 217

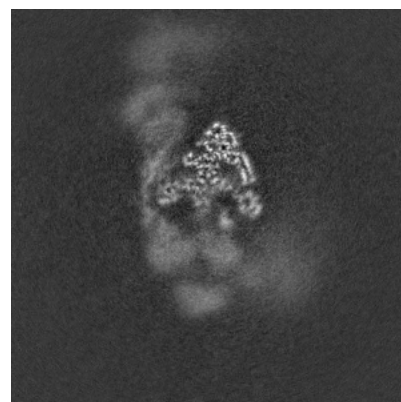
6.3.2 Raw map



X Index: 215



Y Index: 245

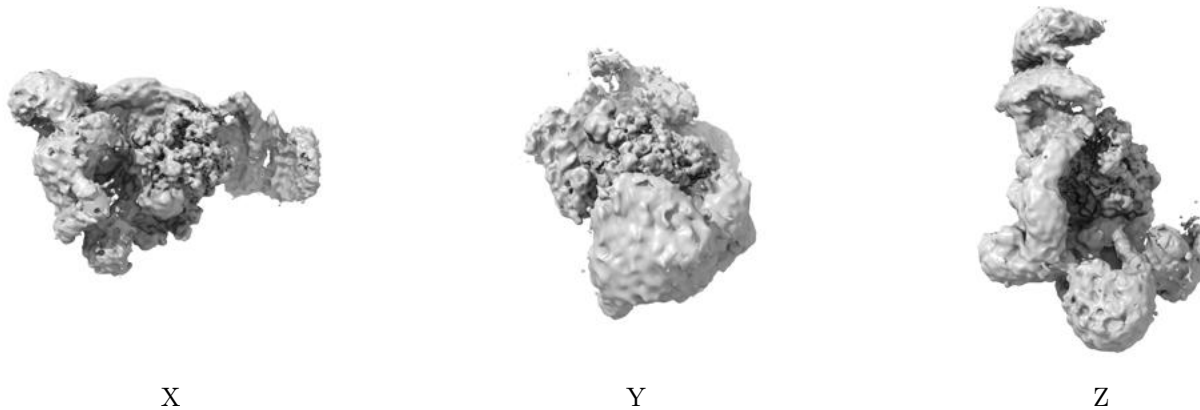


Z Index: 217

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

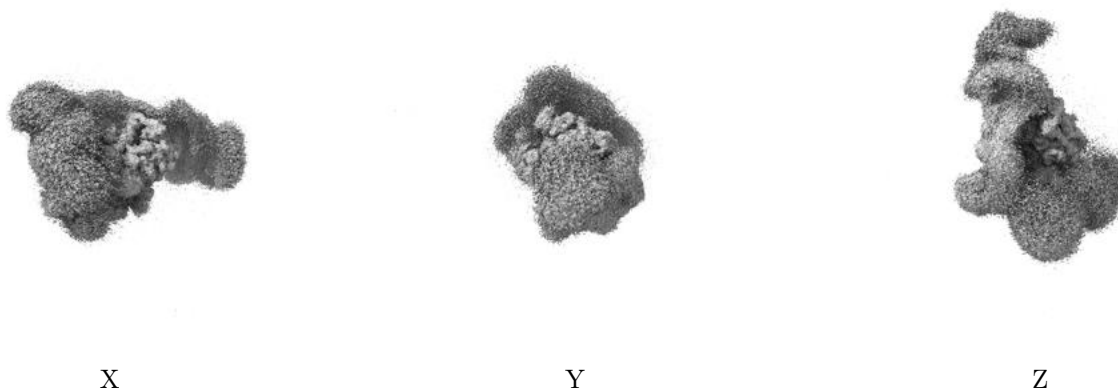
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.205. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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

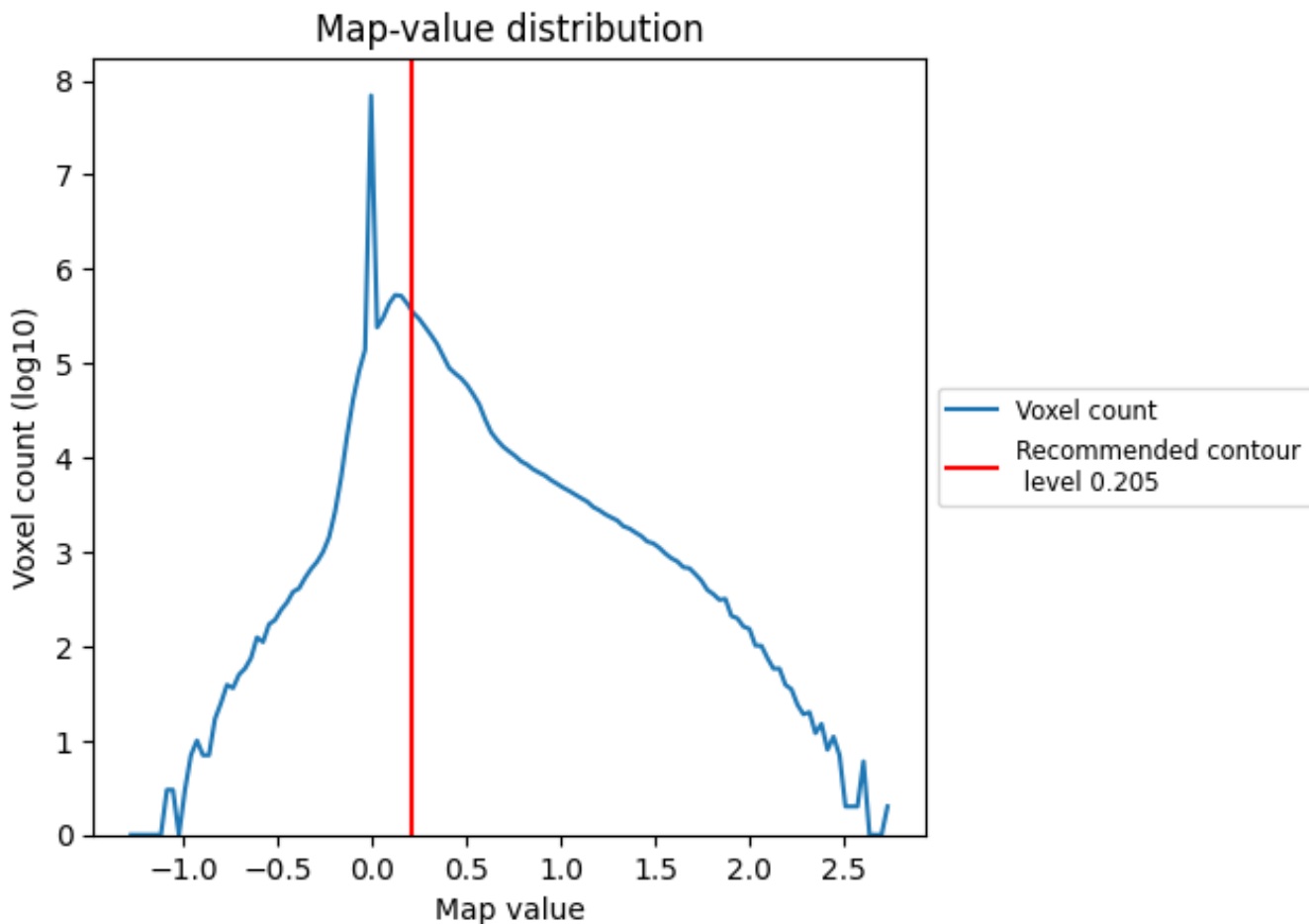
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

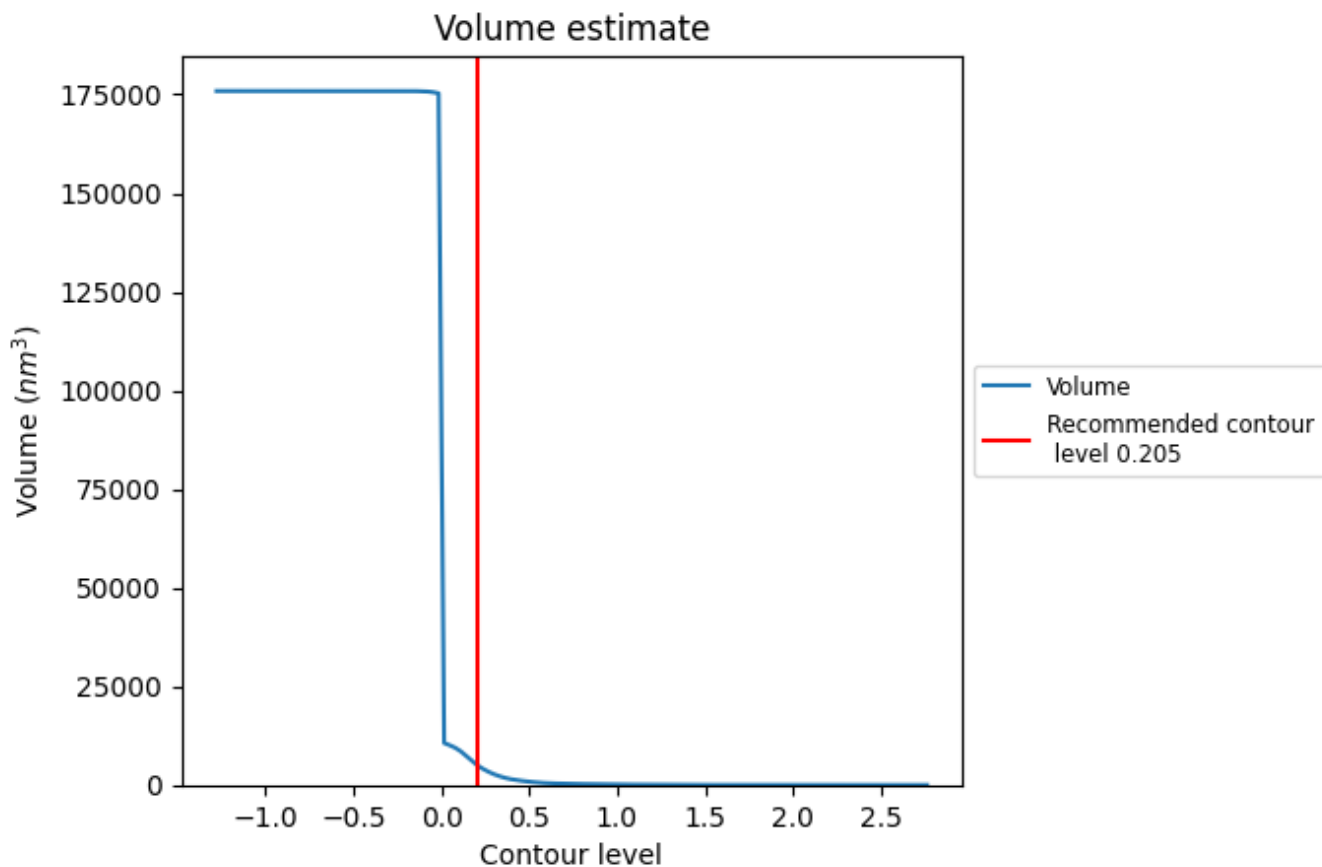
This section contains the results of statistical analysis of the map.

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.

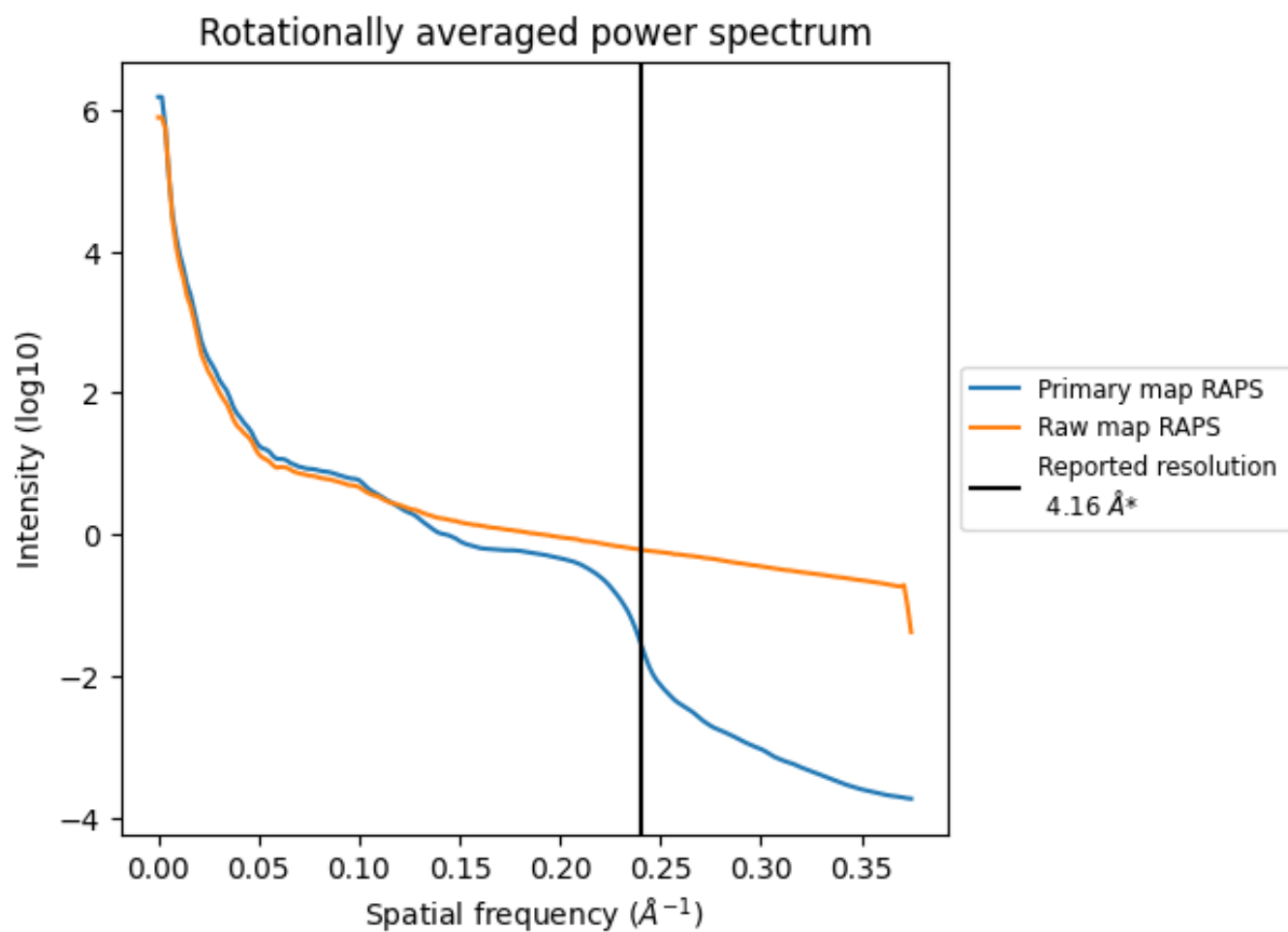
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 4986 nm³; this corresponds to an approximate mass of 4504 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

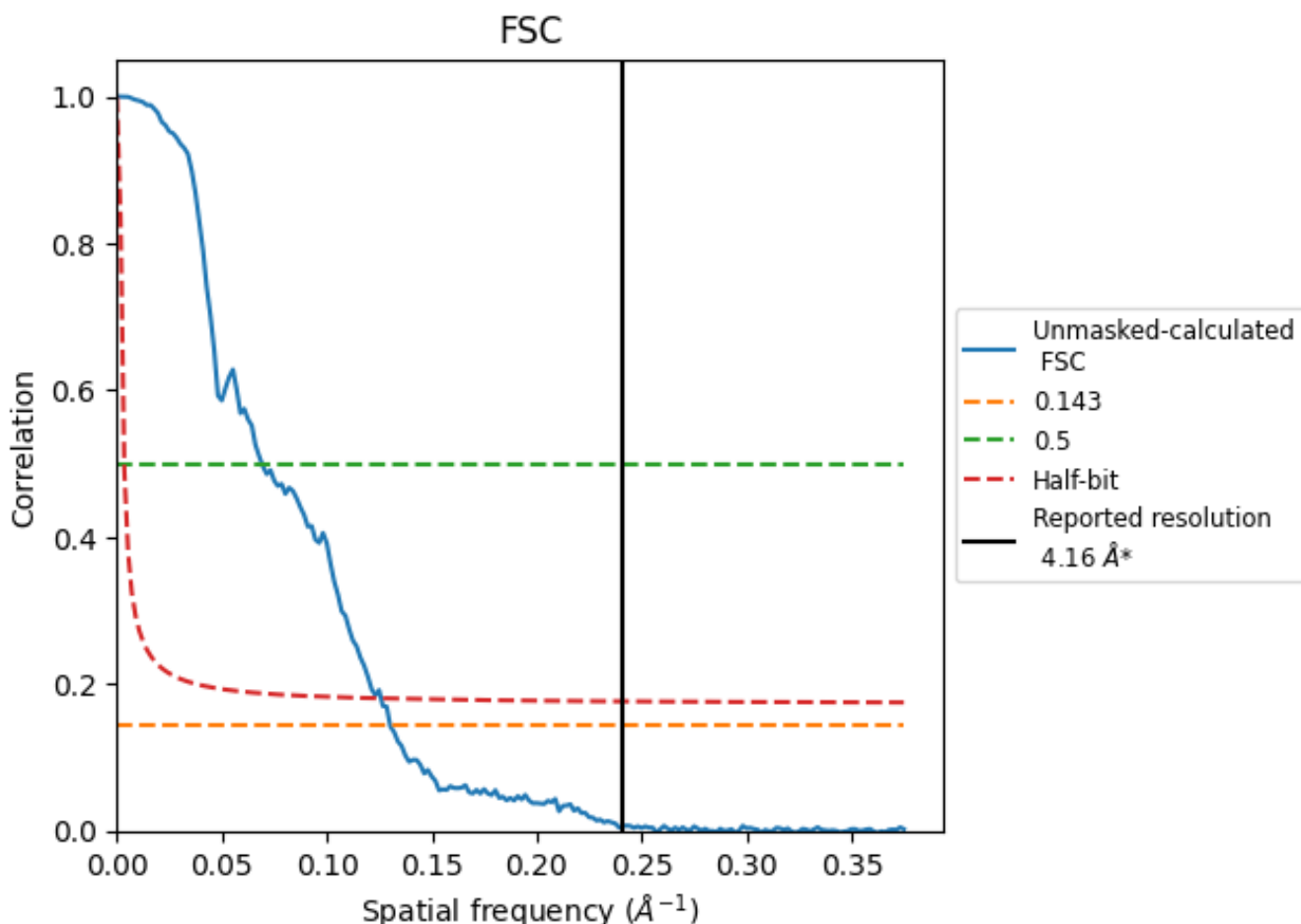


*Reported resolution corresponds to spatial frequency of 0.240 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.240 Å⁻¹

8.2 Resolution estimates [i](#)

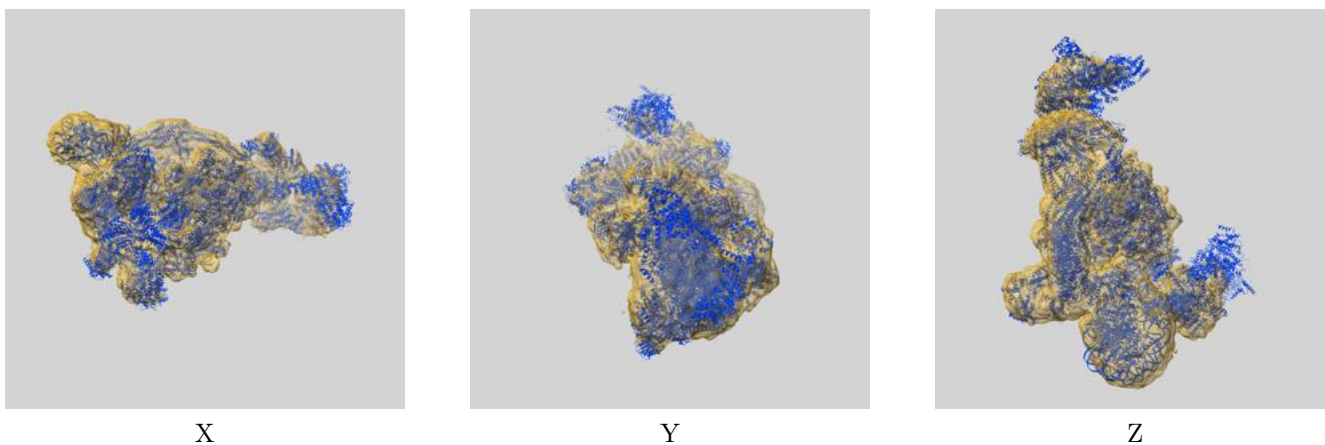
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.16	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	7.68	14.47	7.94

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.68 differs from the reported value 4.16 by more than 10 %

9 Map-model fit [i](#)

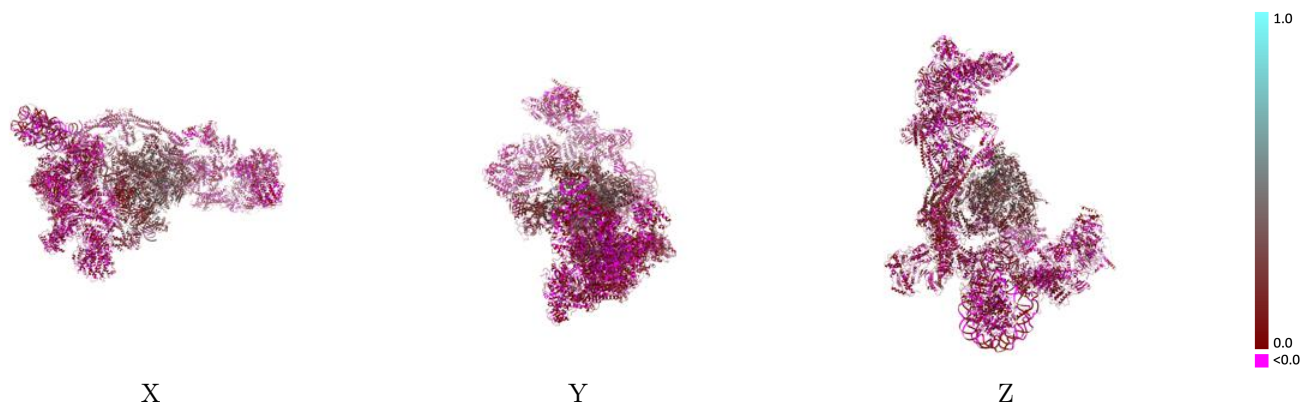
This section contains information regarding the fit between EMDB map EMD-34360 and PDB model 8GXS. Per-residue inclusion information can be found in section 3 on page 20.

9.1 Map-model overlay [i](#)



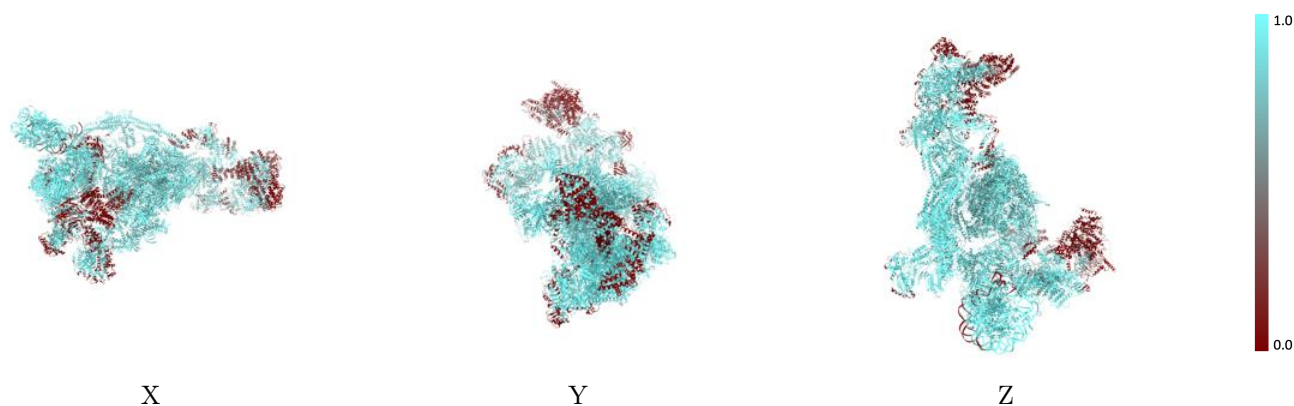
The images above show the 3D surface view of the map at the recommended contour level 0.205 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



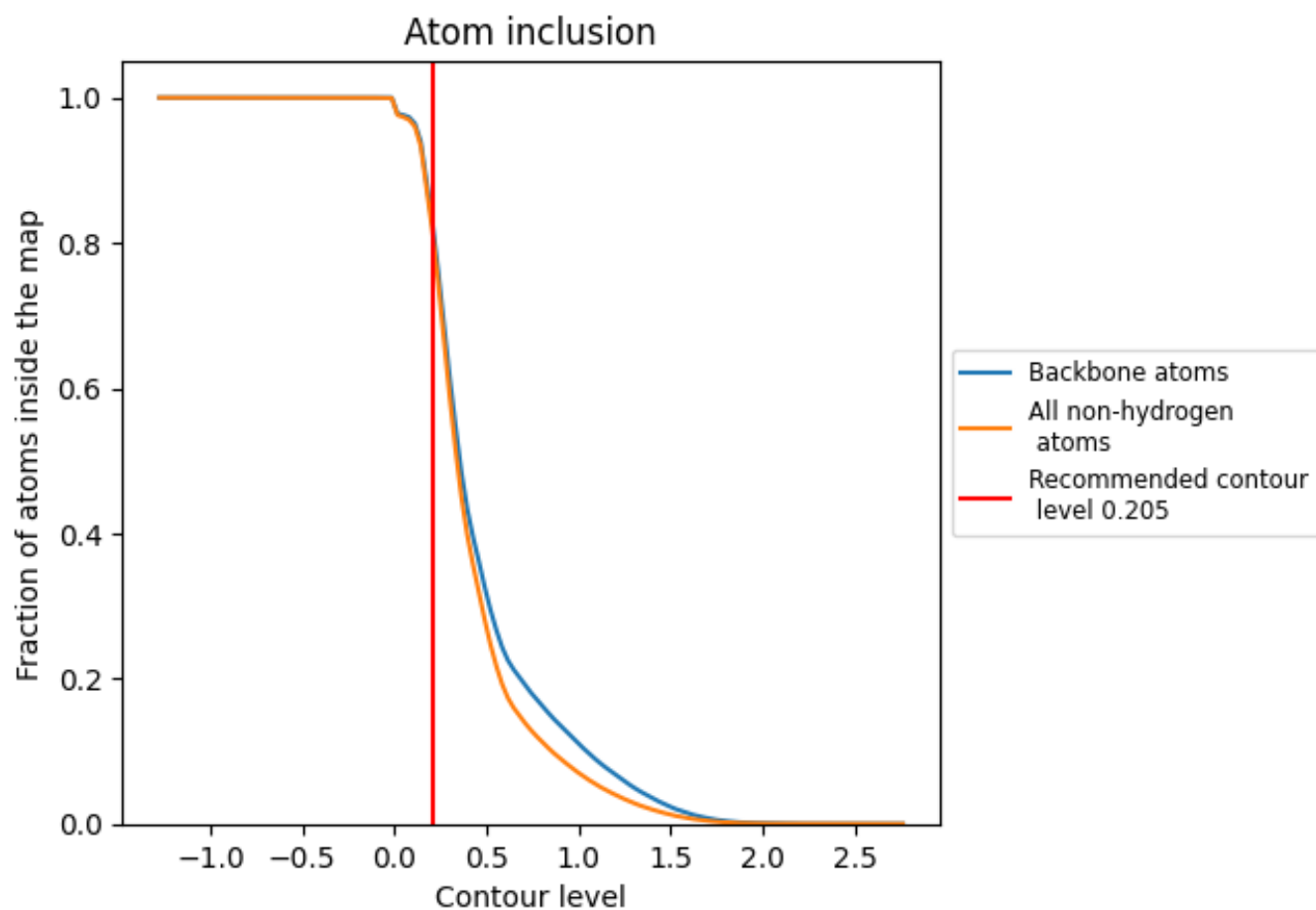
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.205).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 83% of all backbone atoms, 82% 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 (0.205) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8181	 0.0930
BA	 0.9696	 0.2280
DA	 0.7095	 0.0220
DB	 0.9433	 0.0400
DD	 0.6541	 0.0380
DE	 0.8404	 0.0360
DF	 0.7872	 0.0420
DG	 0.3757	 0.0250
DH	 0.9105	 0.0420
DI	 0.7219	 0.0330
DJ	 0.8814	 0.0270
DL	 0.3731	 0.0400
DO	 0.9518	 0.1340
DP	 0.9856	 0.1680
DQ	 0.9410	 0.1180
Dc	 0.0646	 0.0310
Dd	 0.0016	 0.0010
De	 0.1898	 0.0150
Df	 0.5497	 0.0330
Di	 0.0594	 0.0290
Dj	 0.0174	 0.0500
Dk	 0.0000	 -0.0140
DI	 0.0000	 -0.0070
Dm	 0.0000	 -0.0090
EA	 0.9344	 0.1170
EB	 0.9761	 0.1150
FA	 0.9711	 0.1500
FB	 0.9778	 0.1680
HA	 0.9893	 0.0880
HB	 0.9873	 0.0480
HC	 0.9825	 0.0680
HD	 0.9190	 0.1020
HE	 0.9824	 0.0530
HF	 1.0000	 0.0510
HG	 0.9892	 0.0560

























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Chain	Atom inclusion	Q-score
HH	 0.9900	 0.0720
HI	 0.9666	 0.0600
HJ	 0.8512	 0.0620
NA	 0.9418	 0.0310
NB	 1.0000	 0.0490
NC	 1.0000	 0.0050
ND	 1.0000	 0.0090
NE	 0.9765	 0.0330
NF	 0.9715	 0.0480
NG	 0.9847	 0.0410
NH	 0.9639	 0.0380
NX	 0.8070	 0.0300
NY	 0.7947	 0.0250
PA	 0.9581	 0.2510
PB	 0.9667	 0.3080
PC	 0.9742	 0.3060
PD	 0.9710	 0.1790
PE	 0.9607	 0.2250
PF	 0.9287	 0.2910
PG	 0.9767	 0.1770
PH	 0.9741	 0.2790
PI	 0.9769	 0.2320
PJ	 0.9717	 0.3180
PK	 0.9572	 0.3000
PL	 0.9636	 0.3100
X	 0.9993	 0.1960
Y	 0.9971	 0.2010
a	 0.6862	 0.0430
b	 0.8335	 0.0330
c	 0.9131	 0.0440
d	 0.8599	 0.0710
e	 0.9866	 0.0840
f	 0.9925	 0.1270
g	 1.0000	 0.0910
h	 0.9848	 0.1250
i	 0.6572	 0.0630
j	 0.9783	 0.0830
k	 0.9755	 0.1280
l	 0.9911	 0.0600
m	 1.0000	 0.0720
n	 0.9281	 0.0510
o	 0.8827	 0.0320

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Chain	Atom inclusion	Q-score
p	 0.8586	 0.0390
q	 0.9981	 0.0750
r	 0.9914	 0.0850
s	 0.9916	 0.0460
t	 0.9648	 0.0660
u	 1.0000	 0.0740
v	 0.9849	 0.1190
w	 0.3203	 0.0150
x	 0.6378	 0.0290
y	 0.8771	 0.0350
z	 0.9317	 0.0350