



Full wwPDB EM Validation Report ⓘ

Aug 8, 2026 – 12:46 PM JST

PDB ID : 9XTT / pdb_00009xtt
EMDB ID : EMD-67250
Title : Human minor spliceosome branching-completed C complex (after step-I)
Authors : Bai, R.; Wan, R.
Deposited on : 2025-11-23
Resolution : 2.92 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev133
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.50

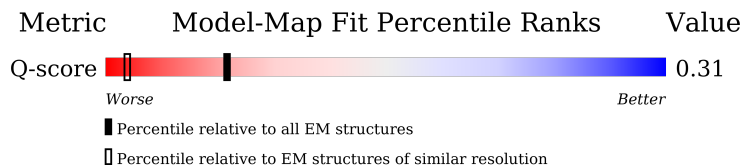
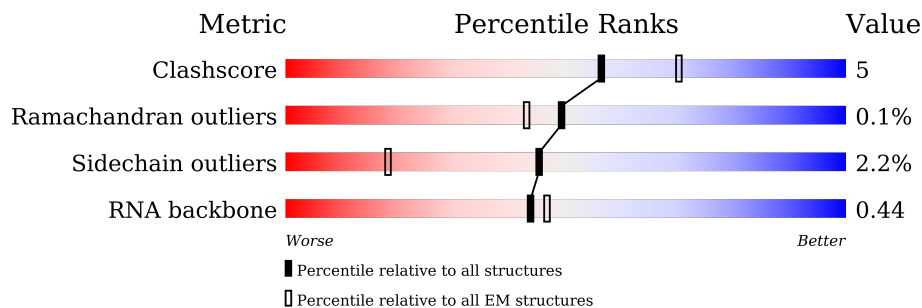
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.92 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	13007 (2.42 - 3.42)

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	0	57	
2	1	277	
3	2	150	

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Mol	Chain	Length	Quality of chain
4	4	646	
5	5	117	
6	6	125	
7	A	2335	
8	B	972	
9	C	2136	
10	D	357	
11	E	802	
12	F	855	
13	G	848	
14	H	166	
15	I	285	
16	J	536	
17	K	514	
18	L	367	
19	M	198	
20	N	229	
21	O	166	
22	P	301	
23	Q	1485	
24	R	425	
25	S	586	
26	T	1227	
27	U	2752	
28	V	908	

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Mol	Chain	Length	Quality of chain
29	X	258	
30	X1	20	
31	X2	18	
32	X3	21	
33	Y	345	
34	Z	654	
35	a	240	
35	h	240	
36	b	119	
36	i	119	
37	c	118	
37	j	118	
38	d	126	
38	k	126	
39	e	92	
39	l	92	
40	f	86	
40	m	86	
41	g	76	
41	n	76	
42	q	504	
42	r	504	
42	s	504	
42	t	504	
43	u	225	

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Mol	Chain	Length	Quality of chain
44	v	411	14% 74% 20% 5%
45	w	146	46% 72% 27%
46	x	174	29% 39% 12% 48%
47	z	263	27% 70%

2 Entry composition

There are 54 unique types of molecules in this entry. The entry contains 117342 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 RNA chain called MSE-U12_exon.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	25	Total	C	N	O	P	0	0
			533	238	98	172	25		

- Molecule 2 is a RNA chain called MSE-U12_Intron.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	46	Total	C	N	O	P	0	0
			957	430	149	332	46		

- Molecule 3 is a RNA chain called U12 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	2	42	Total	C	N	O	P	0	0
			898	403	163	290	42		

- Molecule 4 is a protein called Peptidylprolyl isomerase domain and WD repeat-containing protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	407	Total	C	N	O	S	0	0
			3283	2095	559	606	23		

- Molecule 5 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	5	109	Total	C	N	O	P	0	0
			2296	1028	383	776	109		

- Molecule 6 is a RNA chain called U6atac snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	6	61	Total	C	N	O	P	0	0
			1327	588	247	429	63		

- Molecule 7 is a protein called Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	A	2261	Total	C	N	O	S	0	0
			18751	12074	3268	3327	82		

- Molecule 8 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	B	900	Total	C	N	O	S	0	0
			7122	4556	1185	1347	34		

- Molecule 9 is a protein called U5 small nuclear ribonucleoprotein 200 kDa helicase.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	C	1923	Total	C	N	O	S	0	0
			15118	9637	2604	2804	73		

- Molecule 10 is a protein called U5 small nuclear ribonucleoprotein 40 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	D	299	Total	C	N	O	S	0	0
			2337	1469	410	445	13		

- Molecule 11 is a protein called Cell division cycle 5-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	E	545	Total	C	N	O	S	0	0
			3485	2136	671	671	7		

- Molecule 12 is a protein called Pre-mRNA-splicing factor SYF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	F	700	Total	C	N	O	S	0	0
			4580	2852	844	870	14		

- Molecule 13 is a protein called Crooked neck-like protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	G	582	Total	C	N	O	S	0	0
			3969	2484	739	740	6		

- Molecule 14 is a protein called Coiled-coil domain-containing protein 12.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	H	44	Total	C	N	O	0	0
			219	131	44	44		

- Molecule 15 is a protein called Pre-mRNA-splicing factor ISY1 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	I	170	Total	C	N	O	S	0	0
			1226	763	236	225	2		

- Molecule 16 is a protein called SNW domain-containing protein 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
16	J	207	Total	C	N	O	P	S	0	0
			1648	1041	289	307	1	10		

- Molecule 17 is a protein called Pleiotropic regulator 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	K	406	Total	C	N	O	S	0	0
			3014	1897	550	558	9		

- Molecule 18 is a protein called RNA-binding protein 48.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	L	141	Total	C	N	O	S	0	0
			1139	727	197	210	5		

- Molecule 19 is a protein called Armadillo repeat-containing protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	M	173	Total	C	N	O	S	0	0
			1249	787	214	243	5		

- Molecule 20 is a protein called Spliceosome-associated protein CWC15 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	N	102	Total	C	N	O	S	0	0
			866	529	171	164	2		

- Molecule 21 is a protein called Peptidyl-prolyl cis-trans isomerase-like 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	O	159	Total	C	N	O	S	0	0
			1236	787	215	227	7		

- Molecule 22 is a protein called Peptidyl-prolyl cis-trans isomerase E.

Mol	Chain	Residues	Atoms				AltConf	Trace
22	P	72	Total	C	N	O	0	0
			288	144	72	72		

- Molecule 23 is a protein called RNA helicase aquarius.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	Q	1327	Total	C	N	O	0	0
			6579	3925	1327	1327		

- Molecule 24 is a protein called Pre-mRNA-splicing factor CWC25 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	R	103	Total	C	N	O	S	0	0
			852	530	159	160	3		

- Molecule 25 is a protein called Pre-mRNA-splicing factor SLU7.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	S	41	Total	C	N	O	S	0	0
			319	196	63	56	4		

- Molecule 26 is a protein called Pre-mRNA-splicing factor ATP-dependent RNA helicase PRP16.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	T	779	Total	C	N	O	S	0	0
			6173	3888	1075	1169	41		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T	561	ALA	LYS	engineered mutation	UNP Q92620

- Molecule 27 is a protein called Serine/arginine repetitive matrix protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	U	139	Total	C	N	O	S	0	0
			909	551	181	176	1		

- Molecule 28 is a protein called Pre-mRNA-splicing factor CWC22 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	V	464	Total	C	N	O	S	0	0
			3768	2415	642	689	22		

- Molecule 29 is a protein called Protein FRG1.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	X	213	Total	C	N	O	S	0	0
			1660	1041	291	320	8		

- Molecule 30 is a protein called Unknown polymer.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	X1	20	Total	C	N	O	0	0
			100	60	20	20		

- Molecule 31 is a protein called Unknown polymer.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	X2	18	Total	C	N	O	0	0
			90	54	18	18		

- Molecule 32 is a protein called Unknown polymer.

Mol	Chain	Residues	Atoms				AltConf	Trace
32	X3	21	Total	C	N	O	0	0
			105	63	21	21		

- Molecule 33 is a protein called Splicing factor YJU2.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Y	207	Total	C	N	O	S	0	0
			1653	1032	301	310	10		

There are 22 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	324	GLN	-	insertion	UNP Q9BW85
Y	325	ARG	-	insertion	UNP Q9BW85
Y	326	GLN	-	insertion	UNP Q9BW85
Y	327	ALA	-	insertion	UNP Q9BW85
Y	328	HIS	-	insertion	UNP Q9BW85
Y	329	ALA	-	insertion	UNP Q9BW85
Y	330	ASP	-	insertion	UNP Q9BW85
Y	331	PHE	-	insertion	UNP Q9BW85
Y	332	GLU	-	insertion	UNP Q9BW85
Y	333	ALA	-	insertion	UNP Q9BW85
Y	334	MET	-	insertion	UNP Q9BW85
Y	335	LEU	-	insertion	UNP Q9BW85
Y	336	ARG	-	insertion	UNP Q9BW85
Y	337	GLN	-	insertion	UNP Q9BW85
Y	338	HIS	-	insertion	UNP Q9BW85
Y	339	ARG	-	insertion	UNP Q9BW85
Y	340	LEU	-	insertion	UNP Q9BW85
Y	341	SER	-	insertion	UNP Q9BW85
Y	342	GLU	-	insertion	UNP Q9BW85
Y	343	GLU	-	insertion	UNP Q9BW85
Y	344	GLU	-	insertion	UNP Q9BW85
Y	345	ARG	-	insertion	UNP Q9BW85

- Molecule 34 is a protein called WD repeat-containing protein 70.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Z	343	Total	C	N	O	S	0	0
			2681	1685	467	508	21		

- Molecule 35 is a protein called Small nuclear ribonucleoprotein-associated proteins B and B'.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	a	73	Total	C	N	O	S	0	0
			591	376	105	103	7		
35	h	73	Total	C	N	O		0	0
			360	214	73	73			

- Molecule 36 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	b	82	Total	C	N	O	S	0	0
			649	413	113	119	4		

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Mol	Chain	Residues	Atoms				AltConf	Trace
36	i	81	Total	C	N	O	0	0
			401	239	81	81		

- Molecule 37 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	c	98	Total	C	N	O	S	0	0
			796	498	144	148	6		
37	j	98	Total	C	N	O		0	0
			487	291	98	98			

- Molecule 38 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	d	85	Total	C	N	O	S	0	0
			663	415	117	125	6		
38	k	81	Total	C	N	O		0	0
			399	237	81	81			

- Molecule 39 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	e	77	Total	C	N	O	S	0	0
			638	405	113	115	5		
39	l	77	Total	C	N	O		0	0
			381	227	77	77			

- Molecule 40 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	f	73	Total	C	N	O	S	0	0
			567	367	94	101	5		
40	m	73	Total	C	N	O		0	0
			356	210	73	73			

- Molecule 41 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	g	74	Total	C	N	O	S	1	0
			584	369	106	103	6		
41	n	74	Total	C	N	O		0	0
			364	215	74	75			

- Molecule 42 is a protein called Pre-mRNA-processing factor 19.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	q	137	Total	C	N	O	0	0
			684	410	137	137		
42	r	135	Total	C	N	O	0	0
			674	404	135	135		
42	s	138	Total	C	N	O	0	0
			689	413	138	138		
42	t	136	Total	C	N	O	0	0
			679	407	136	136		

- Molecule 43 is a protein called Pre-mRNA-splicing factor SPF27.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	u	225	Total	C	N	O	0	0
			1117	666	225	226		

- Molecule 44 is a protein called Eukaryotic initiation factor 4A-III.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	v	390	Total	C	N	O	S	0	0
			3130	1976	546	589	19		

- Molecule 45 is a protein called Protein mago nashi homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	w	144	Total	C	N	O	S	0	0
			1196	772	200	221	3		

- Molecule 46 is a protein called RNA-binding protein 8A.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	x	91	Total	C	N	O	S	0	0
			730	463	122	142	3		

- Molecule 47 is a protein called Multiple myeloma tumor-associated protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	z	78	Total	C	N	O	S	0	0
			611	375	119	115	2		

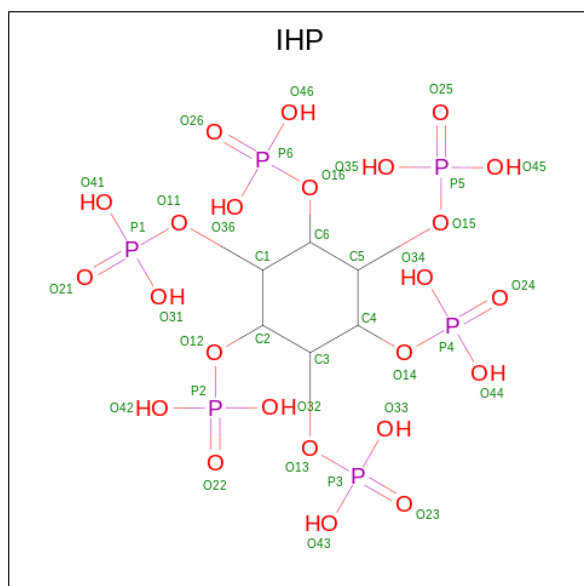
- Molecule 48 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
48	6	6	Total	Mg	0
			6	6	
48	B	1	Total	Mg	0
			1	1	
48	C	1	Total	Mg	0
			1	1	
48	v	1	Total	Mg	0
			1	1	

- Molecule 49 is POTASSIUM ION (CCD ID: K) (formula: K) (labeled as "Ligand of Interest" by depositor).

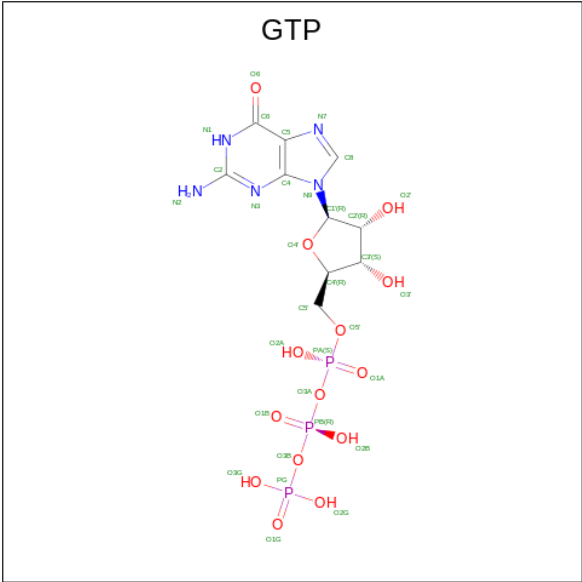
Mol	Chain	Residues	Atoms		AltConf
49	6	2	Total	K	0
			2	2	

- Molecule 50 is INOSITOL HEXAKISPHOSPHATE (CCD ID: IHP) (formula: $C_6H_{18}O_{24}P_6$) (labeled as "Ligand of Interest" by depositor).



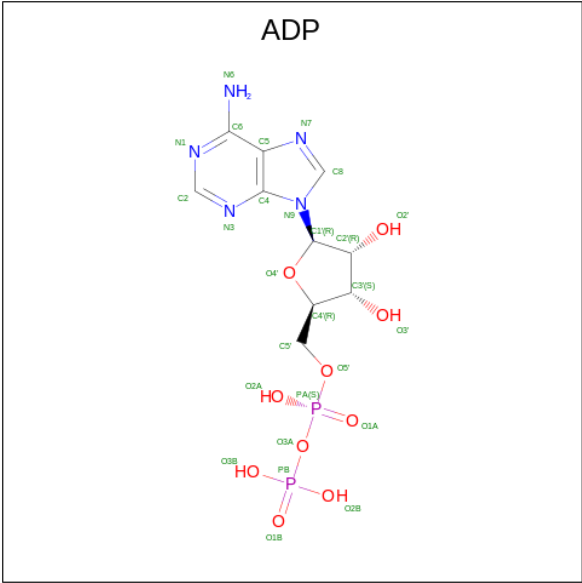
Mol	Chain	Residues	Atoms				AltConf
50	A	1	Total	C	O	P	0
			36	6	24	6	

- Molecule 51 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
51	B	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 52 is ADENOSINE-5'-DIPHOSPHATE (CCD ID: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).

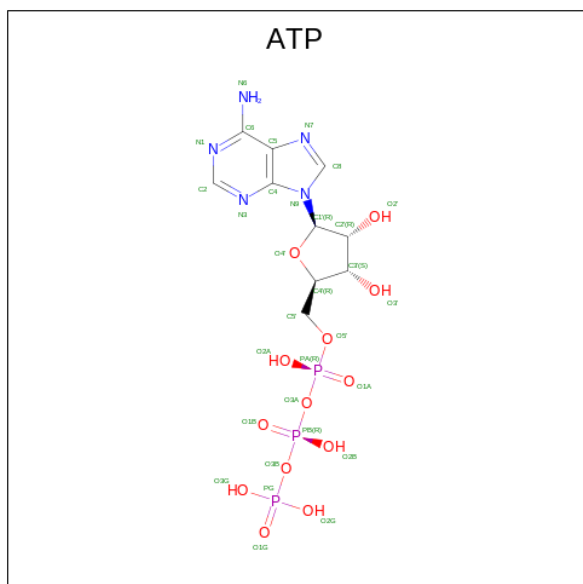


Mol	Chain	Residues	Atoms					AltConf
52	C	1	Total	C	N	O	P	0
			27	10	5	10	2	
52	C	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 53 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
53	S	1	Total	Zn	0
			1	1	
53	Y	1	Total	Zn	0
			1	1	

- Molecule 54 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃) (labeled as "Ligand of Interest" by depositor).

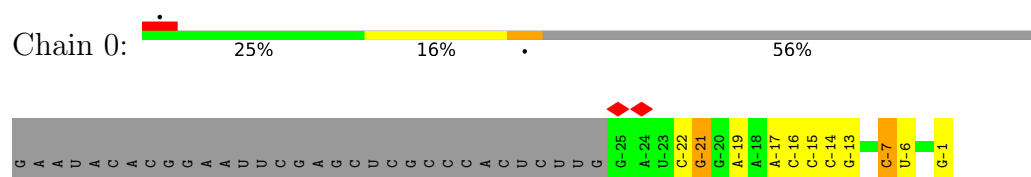


Mol	Chain	Residues	Atoms					AltConf
54	v	1	Total	C	N	O	P	0
			31	10	5	13	3	

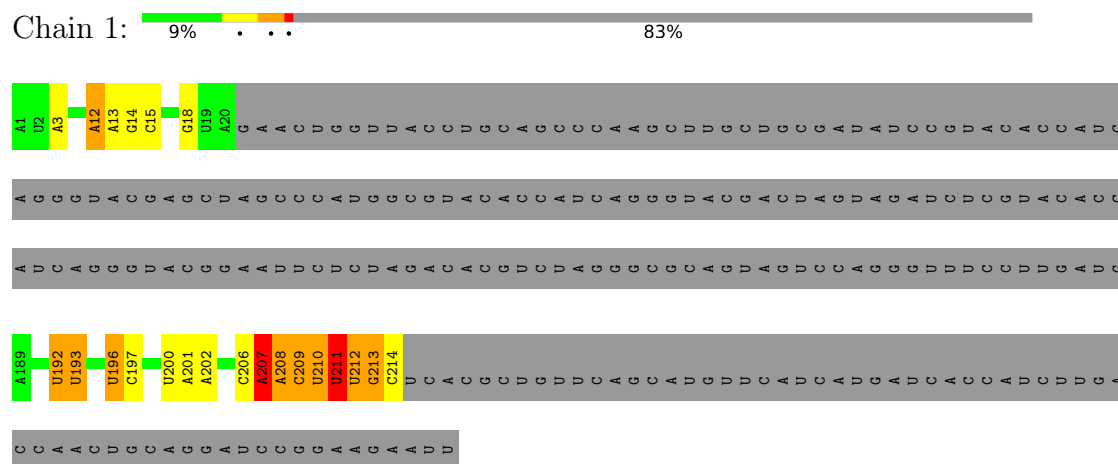
3 Residue-property plots [i](#)

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.

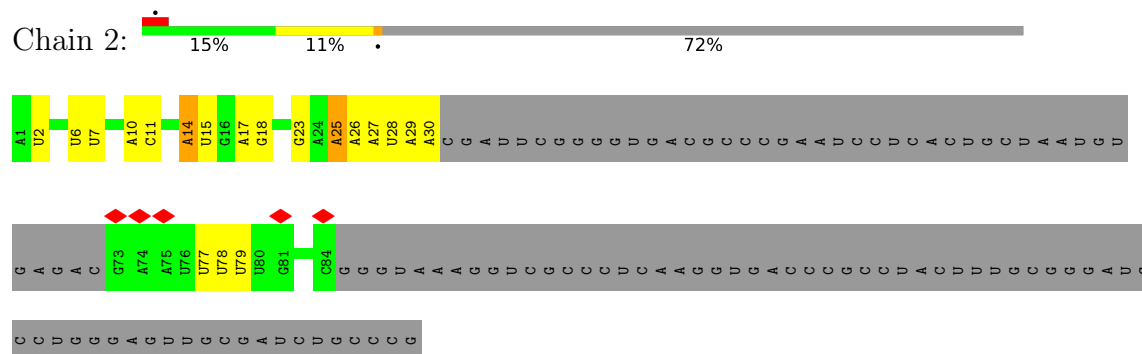
• Molecule 1: MSE-U12_exon



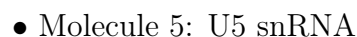
• Molecule 2: MSE-U12_Intron

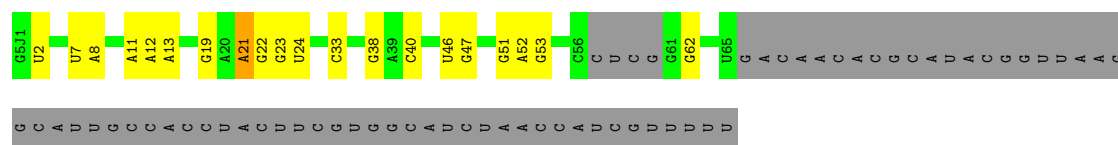


• Molecule 3: U12 snRNA

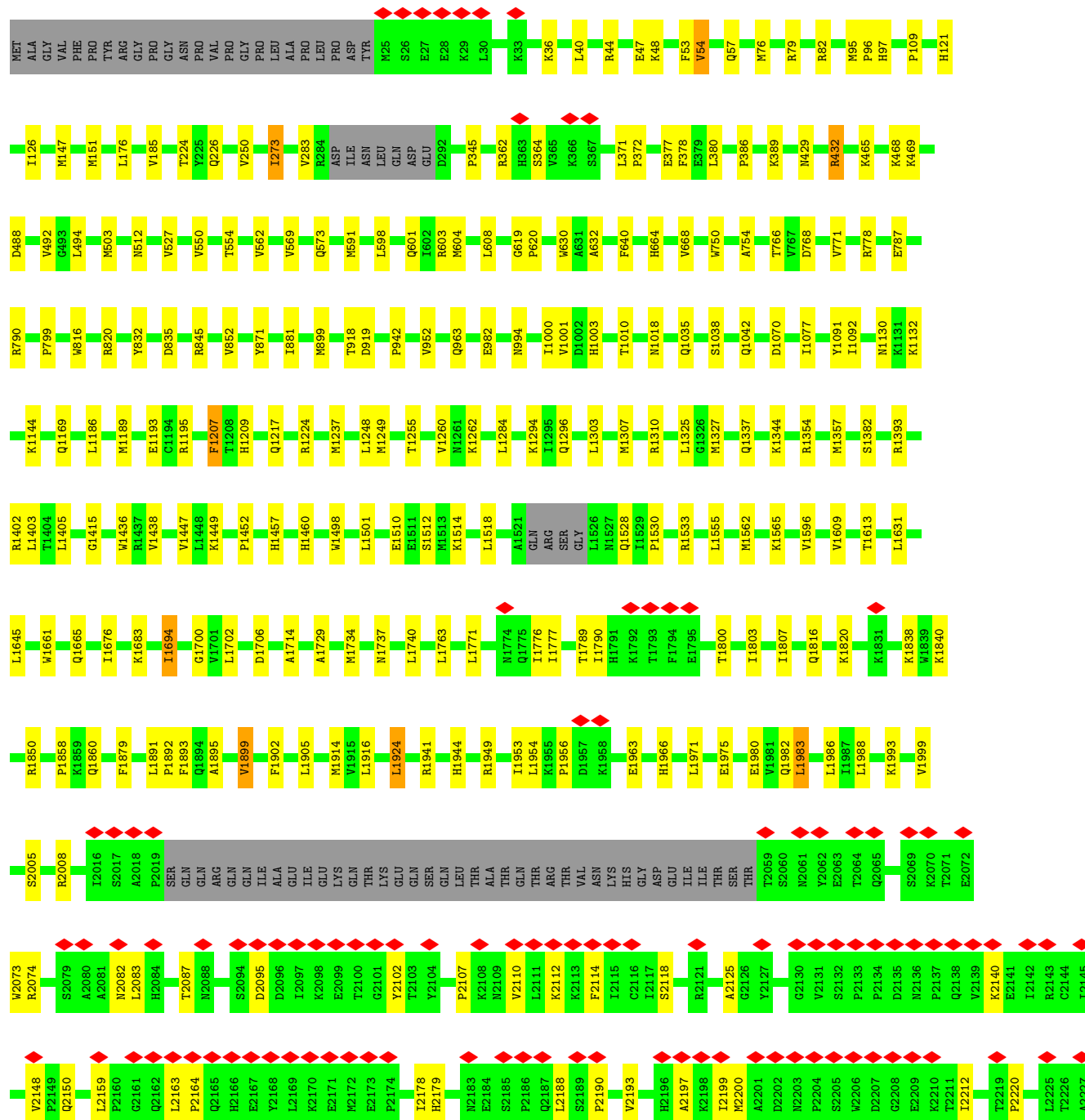


• Molecule 4: Peptidylprolyl isomerase domain and WD repeat-containing protein 1





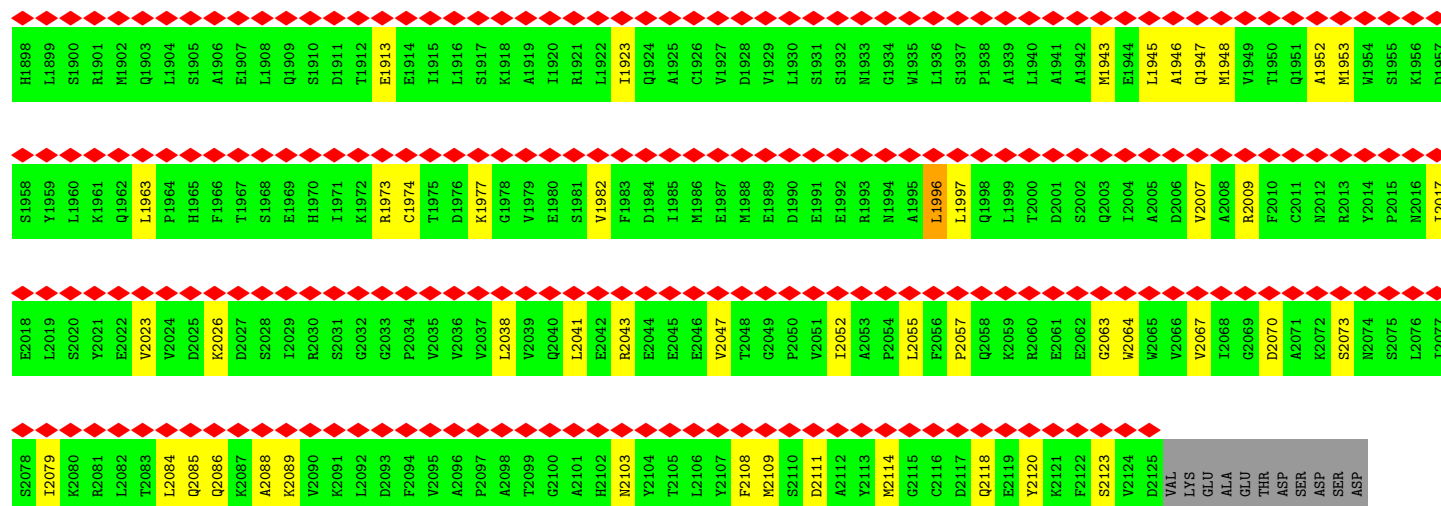
Chain A:



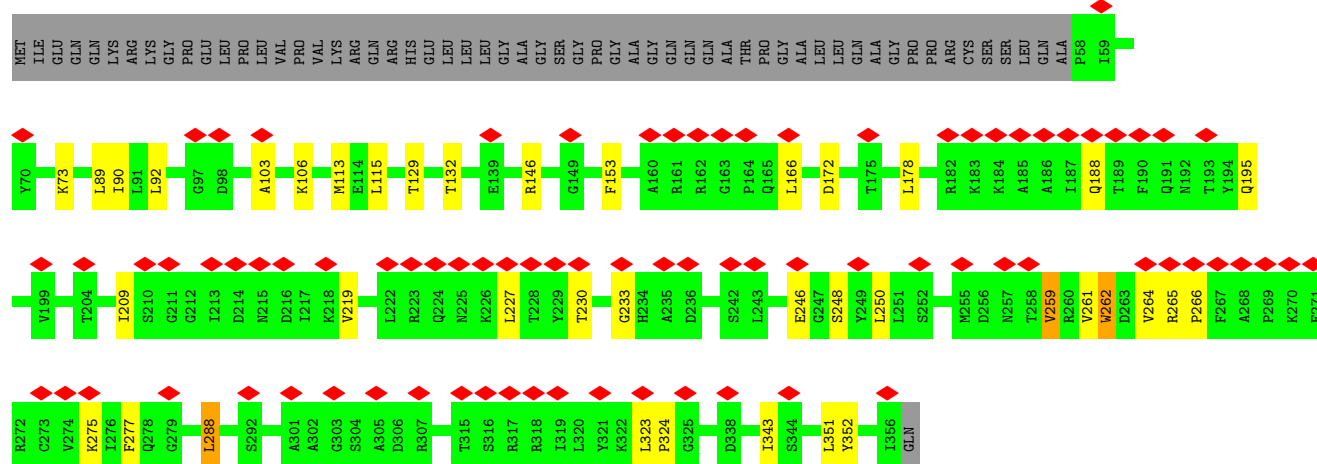
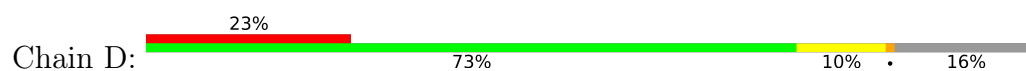


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H421	F422	M423	A424	K425	K426	R427	C428	Q429	L430	P431	D432	G433	S434	F435	R436	R437	Q438	R439	K440	G441	Y442	E443	E444	V445	H446	V447	P448	A449	L450	K451	P452	K453	P454	F455	G456	S457	E458	E459	Q460	L461	G522	P463	V464	E465	K466	L467	P468	K469	Y470	A471	Q472	A473	G474	F475	E476	G477	F478	K479	T480
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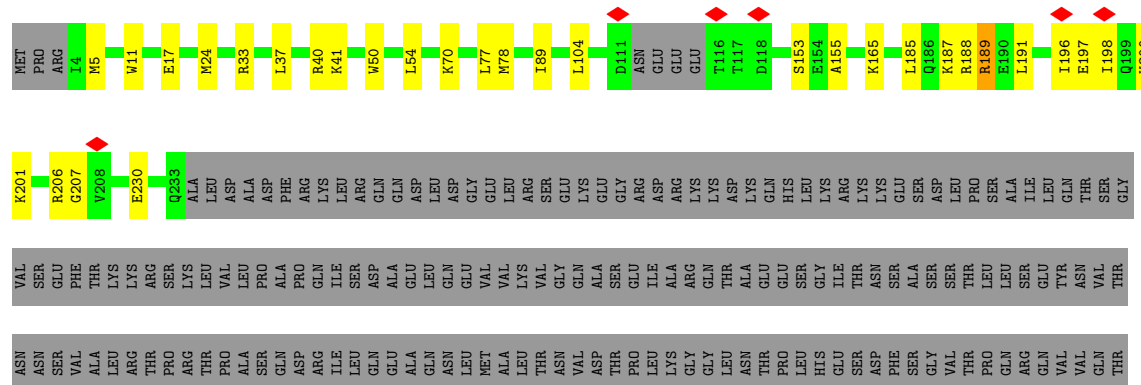
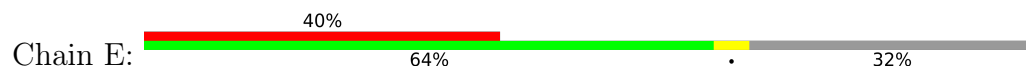
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V1842	K1120	L1180	L1302	F1362	G1422	E1482	M1542	E1602	I1662	L1722	S1782	V1842
R1843	R1121	F1181	D1303	A1363	N1423	R1483	A1543	K1603	I1663	P1723	D1783	R1843
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L1845	Q1123	L1184	Q1305	L1365	I1425	I1485	P1545	S1605	D1665	E1725	L1785	L1845
I1846	Q1124	E1185	Q1306	R1366	I1426	R1486	V1546	D1606	T1666	S1726	S1786	I1846
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H1863	I1142	E1201	L1263	D1323	K1443	W1503	V1563	G1623	P1683	K1743	S1803	H1863
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L1878	H1158	S1217	T1280	T1338	L1458	V1518	T1578	S1638	E1699	T1758	I1818	L1878
Y1879	N1159	S1218	Q1281	V1339	L1459	F1519	T1579	G1639	G1699	F1759	A1819	Y1879
N1880	E1160	E1219	Q1282	Y1340	G1460	P1520	C1580	A1640	G1700	L1760	A1820	N1880
N1881	I1161	A1220	L1282	N1341	G1461	V1521	A1581	I1641	R1701	Y1761	I1821	N1881
P1882	E1162	F1221	P1283	N1342	E1462	P1522	A1582	Q1642	C1702	I1762	Y1822	P1882
K1883	L1164	I1222	V1284	M1402	N1463	L1523	D1583	V1643	V1703	R1763	Y1823	K1883
F1884	I1165	I1223	S1285	D1343	G1464	E1524	I1584	V1644	I1704	M1764	I1824	F1884
N1885	L1166	L1224	F1286	D1344	P1465	L1525	Q1585	V1645	M1705	T1765	N1825	N1885
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P1887	E1226	E1226	H1288	N1346	V1467	H1527	Q1587	S1647	T1707	T1767	T1827	P1887
H1888	P1167	D1227	H1289	F1346	E1468	Q1528	R1588	R1648	G1708	P1768	T1828	H1888
V1889	P1168	V1228	I1290	V1347	V1469	G1529	F1589	S1649	S1709	N1769	L1829	V1889
K1890	K1169	D1229	L1291	V1348	V1469	T1409	L1590	L1650	K1710	Y1770	E1830	K1890
N1891	M1170	S1230	P1292	G1349	V1469	I1470	H1591	C1651	K1711	Y1771	L1831	N1891
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L1893	V1232	K1294	Y1295	P1351	T1412	S1472	T1593	G1653	F1713	L1773	S1833	L1893
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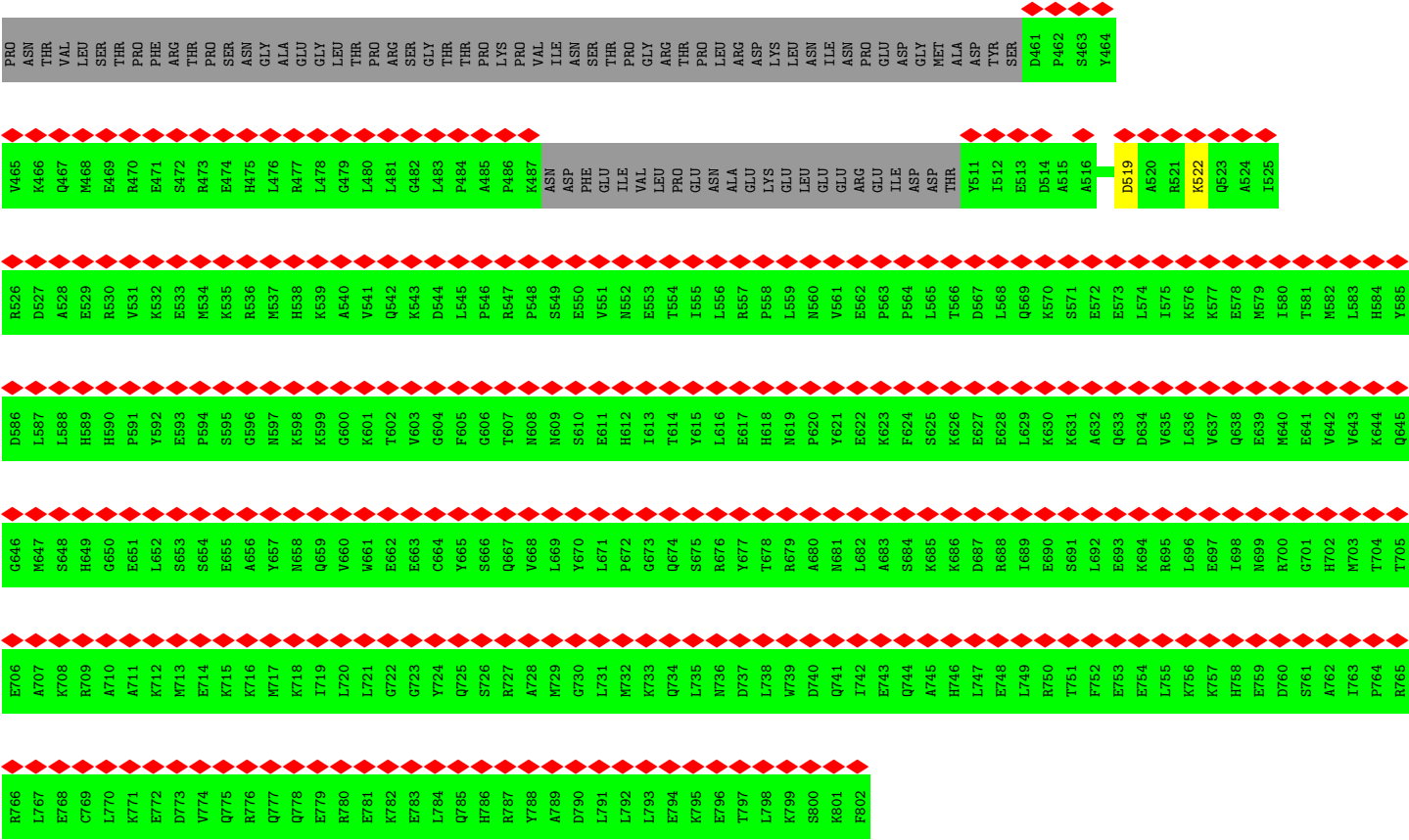


• Molecule 10: U5 small nuclear ribonucleoprotein 40 kDa protein

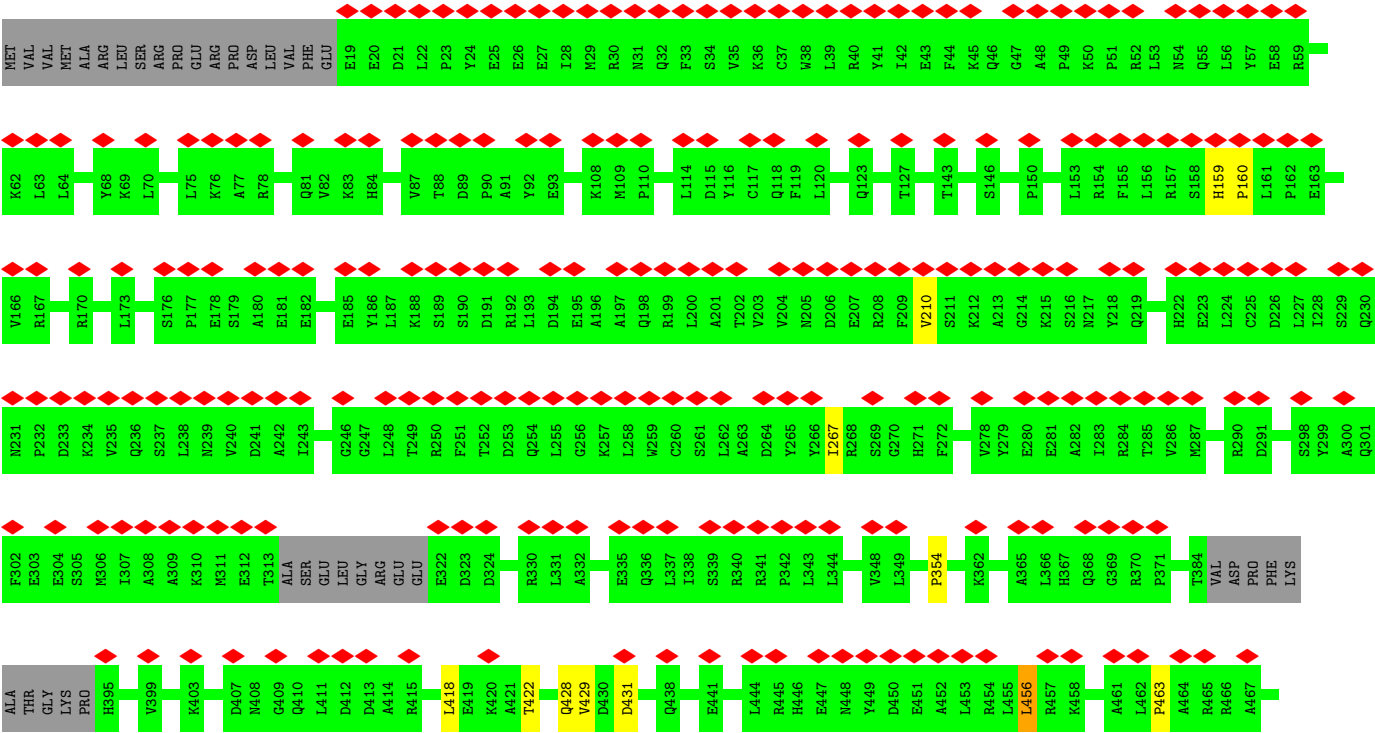
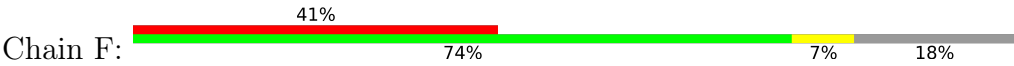


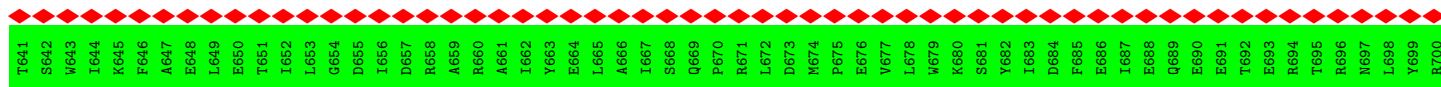
• Molecule 11: Cell division cycle 5-like protein



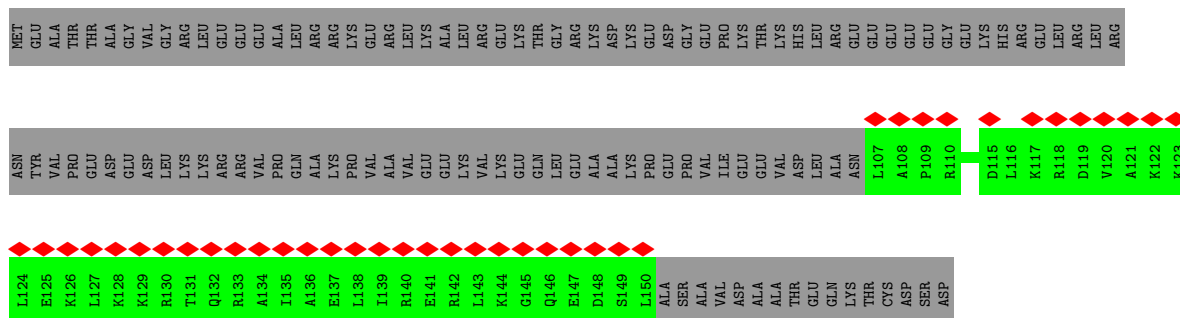


● Molecule 12: Pre-mRNA-splicing factor SYF1

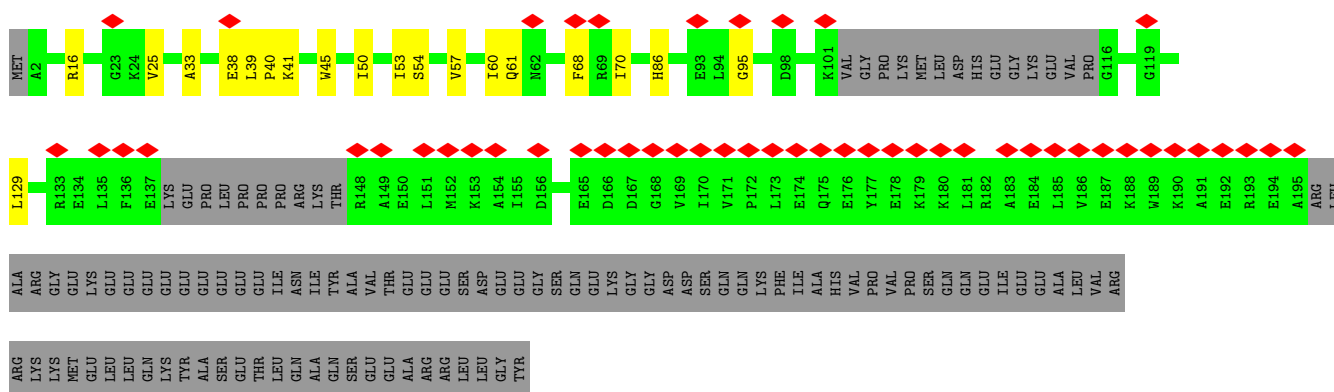




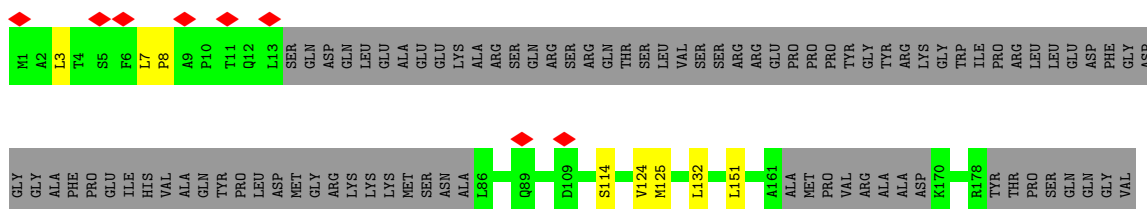
- Molecule 14: Coiled-coil domain-containing protein 12

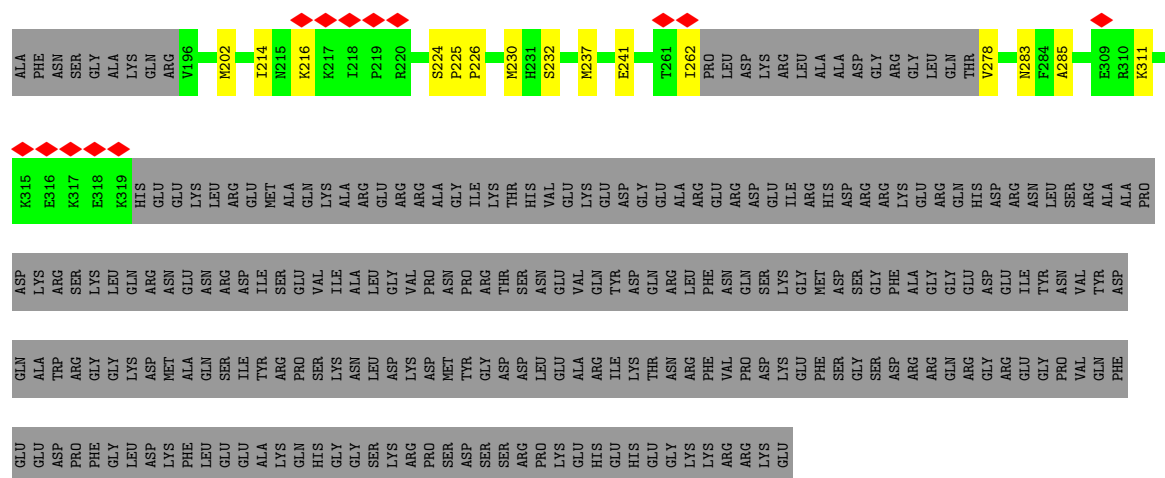


- Molecule 15: Pre-mRNA-splicing factor ISY1 homolog

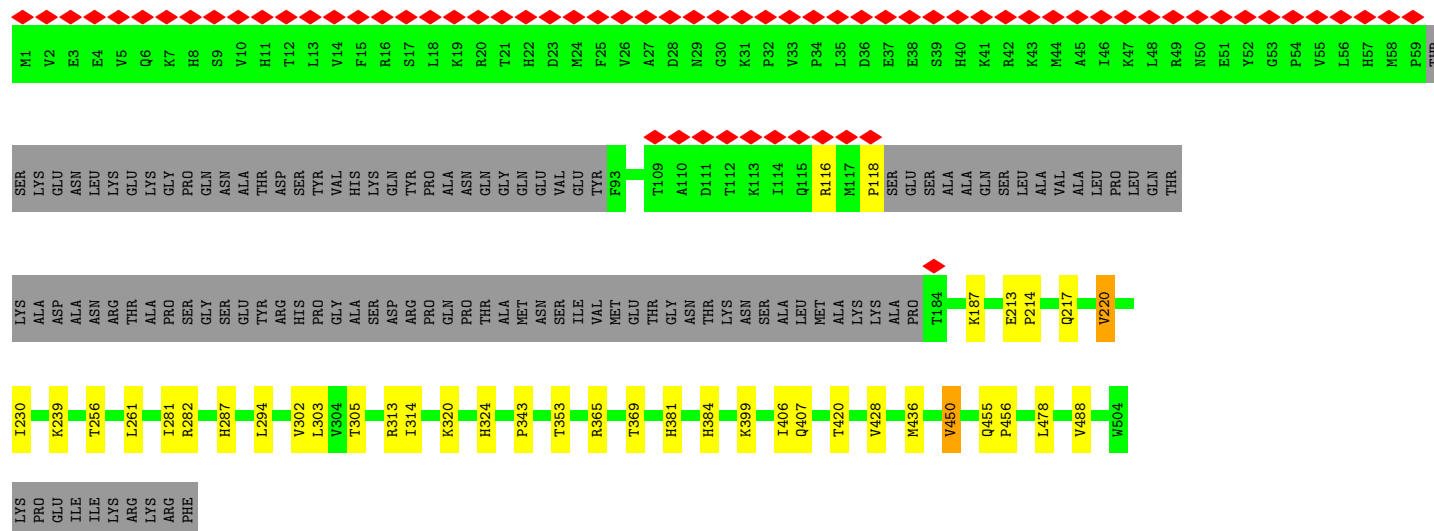


- Molecule 16: SNW domain-containing protein 1

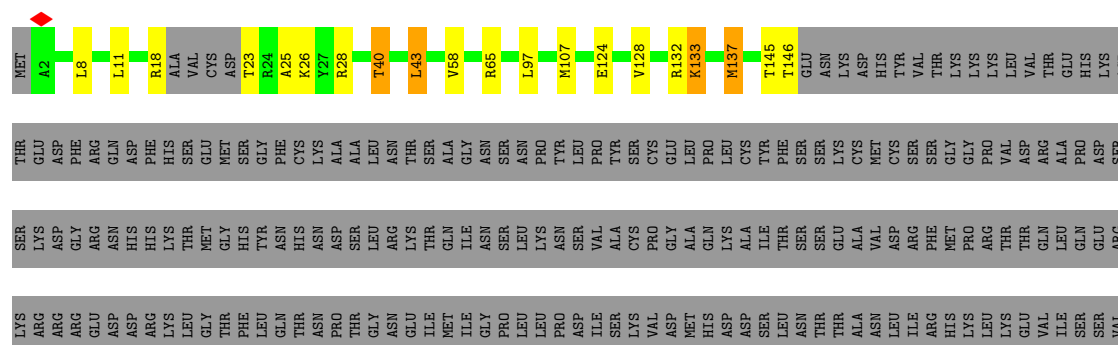




• Molecule 17: Pleiotropic regulator 1



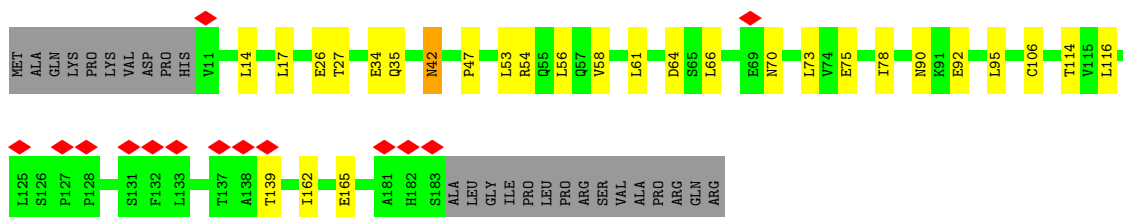
• Molecule 18: RNA-binding protein 48



PRO
LYS
PRO
PRO
GLU
ASP
LYS
PRO
GLU
ASP
VAL
HIS
THR
SER
HIS
LEU
LEU
GLN
ARG
ARG
ILE

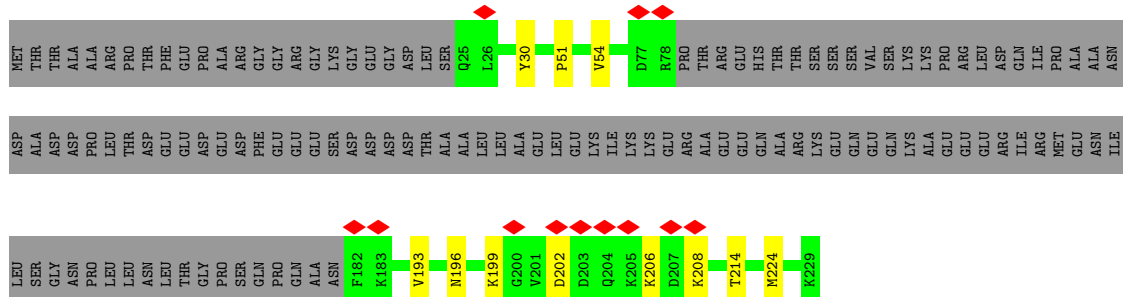
• Molecule 19: Armadillo repeat-containing protein 7

Chain M: 7% 73% 14% 13%



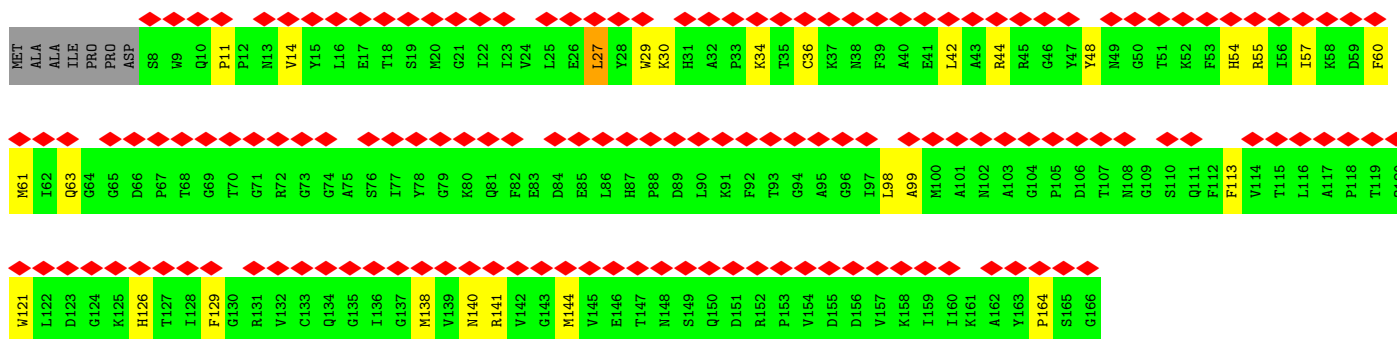
• Molecule 20: Spliceosome-associated protein CWC15 homolog

Chain N: 5% 40% 5% 55%



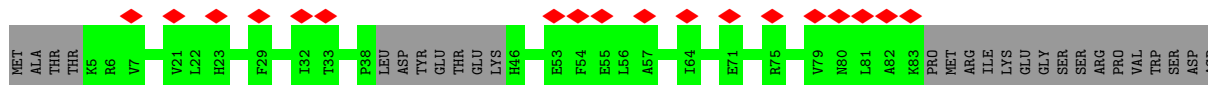
• Molecule 21: Peptidyl-prolyl cis-trans isomerase-like 1

Chain O: 88% 80% 16%



• Molecule 22: Peptidyl-prolyl cis-trans isomerase E

Chain P: 6% 24% 76%







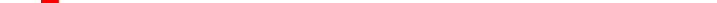
Chain T:





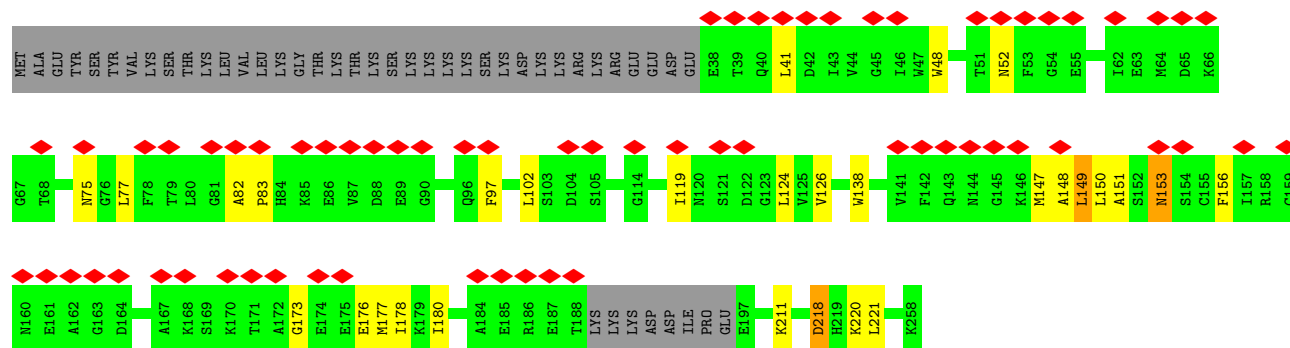
[illegible]

- Molecule 28: Pre-mRNA-splicing factor CWC22 homolog

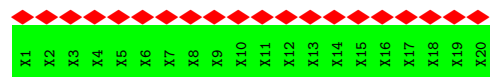
Chain V: 

GLU	ARG	L494	E396	T212	LEU	SER	MET
ASN	ASN	C496	K397	H213	ASP	TYR	LYS
ASN	ASN	C496	K397	H213	PRO	SER	ASP
TYR	TYR	B501	Y399	V214	LEU	SER	SER
SER	SER	B501	Y399	V214	LEU	MET	ALA
GLN	THR	L509	K402	A217	THR	GLU	GLN
ASN	ASN	K519	K403	L218	ARG	ILE	GLN
ASP	ASP	K519	E404	I221	THR	SER	ILE
ARG	ARG	L555	L406	G229	GLY	ASN	LYS
ASP	ASP	Y556	ASP	G230	ALA	SER	ARG
SER	SER	F566	GLU	I233	TYR	ASP	SER
ASP	ASP	C591	GLY	L234	ILE	ARG	GLY
ARG	ARG	E592	ASP	L234	PRO	LYS	HIS
GLN	GLN	E592	THR	K235	PRO	ARG	ASP
ILE	ILE	Y593	ASP	R236	ALA	ARG	ARG
HIS	HIS	Y593	SER	L237	LEU	GLU	ARG
GLY	GLY	R602	SER	L237	LYS	GLU	ASN
LEU	LEU	R602	ASN	R246	ARG	LEU	LEU
GLU	GLU	L615	THR	R247	MET	GLU	LEU
ASN	ASN	L616	ASP	R247	ASP	ARG	ASN
LYS	LYS	L616	GLN	L254	MET	ASP	ASN
HIS	HIS	F626	ASP	T255	GLN	THR	TYR
ARG	ARG	F626	ALA	F259	GLU	ASP	GLN
GLY	GLY	N629	GLY	F259	GLN	ARG	ARG
THR	THR	N629	SER	L263	ILE	LYS	ASN
GLU	GLU	L636	SER	L263	THR	ARG	ASN
ARG	ARG	L636	SER	L263	THR	SER	SER
LYS	LYS	L636	GLU	K149	ASP	ARG	ARG
ARG	ARG	E642	GLU	N150	LYS	GLU	GLU
SER	SER	L643	GLU	S151	SER	ASP	ASP
GLY	GLY	R644	GLU	L152	PRO	ARG	PRO
ARG	ARG	E645	GLU	A153	SER	TYR	TYR
HIS	HIS	R648	GLU	V290	PRO	GLU	GLU
ASP	ASP	N649	GLU	E291	GLY	GLY	GLU
SER	SER	N649	GLU	V292	ARG	GLN	GLN
HIS	HIS	T650	GLU	R156	ARG	GLU	GLU
SER	SER	P651	GLY	M157	ASN	ASN	ASN
ALA	ALA	R652	GLY	I328	PRO	SER	SER
SER	SER	R652	GLU	R331	GLU	PRO	PRO
ALA	ALA	VAL	ASP	V332	THR	THR	THR
ASN	ASN	ILE	GLU	M335	VAL	VAL	ARG
ASP	ASP	VAL	GLU	M335	ASP	ASP	ARG
ASN	ASN	ALA	GLY	I352	THR	THR	THR
VAL	VAL	GLN	GLN	I353	GLN	GLN	TYR
ARG	ARG	LYS	LYS	L354	SER	SER	PHE
ASP	ASP	PRO	VAL	L354	SER	SER	PHE
PRO	PRO	ILE	THR	E355	SER	SER	TYR
LYS	LYS	GLY	THR	G356	ALA	ALA	ARG
HIS	HIS	VAL	ILE	I175	GLN	GLN	ARG
GLY	GLY	GLN	HIS	I178	ASP	ASP	SER
LYS	LYS	GLN	ASP	D359	GLU	GLU	SER
THR	THR	ASN	K447	L359	PRO	PRO	TYR
ASN	ASN	LYS	T448	I181	ALA	ALA	GLU
LYS	LYS	SER	E449	I182	THR	THR	HIS
ARG	ARG	SER	T450	L185	LYS	LYS	SER
LYS	LYS	PRO	M451	R185	LYS	LYS	ARG
ASP	ASP	GLU	L452	R380	LYS	LYS	ARG
VAL	VAL	VAL	M451	V381	GLY	GLY	ARG
ASP	ASP	SER	L452	L382	LYS	LYS	ARG
LYS	LYS	SER	M492	F391	ASP	ASP	ARG
SER	SER	SER	L493	F391	ASP	ASP	ARG
SER	SER	SER	L493	F391	ASP	ASP	ARG

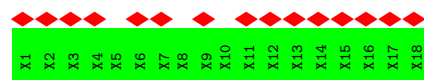
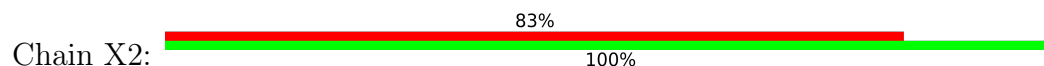
- Molecule 29: Protein FRG1



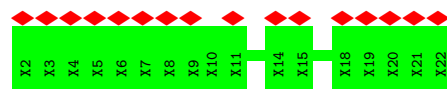
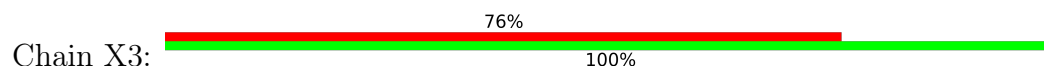
- Molecule 30: Unknown polymer



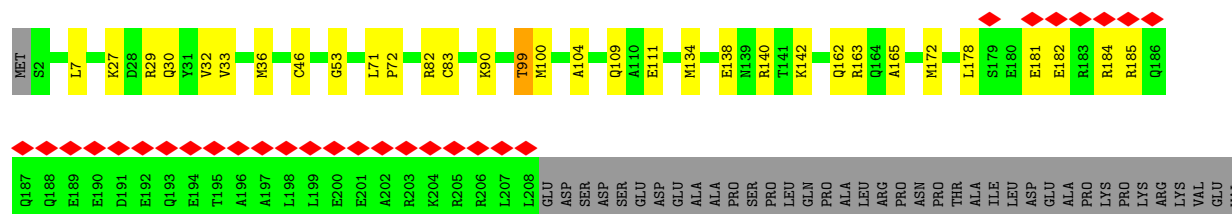
- Molecule 31: Unknown polymer



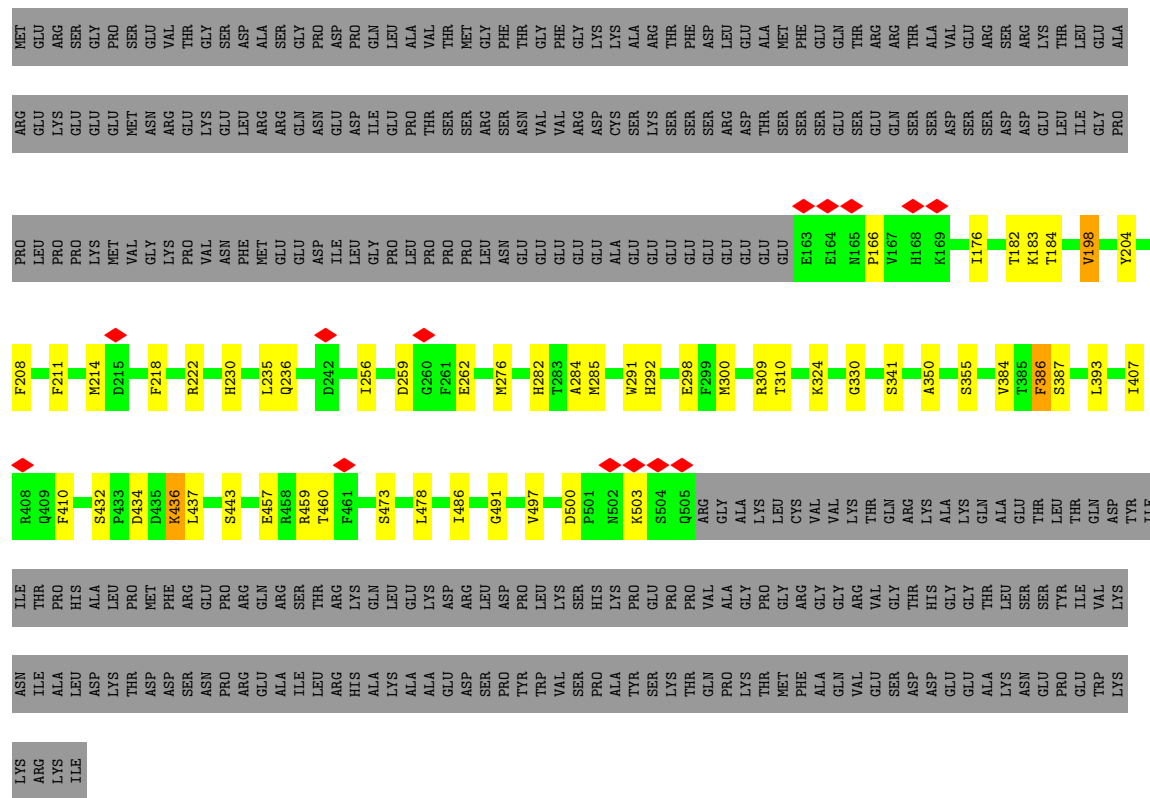
- Molecule 32: Unknown polymer



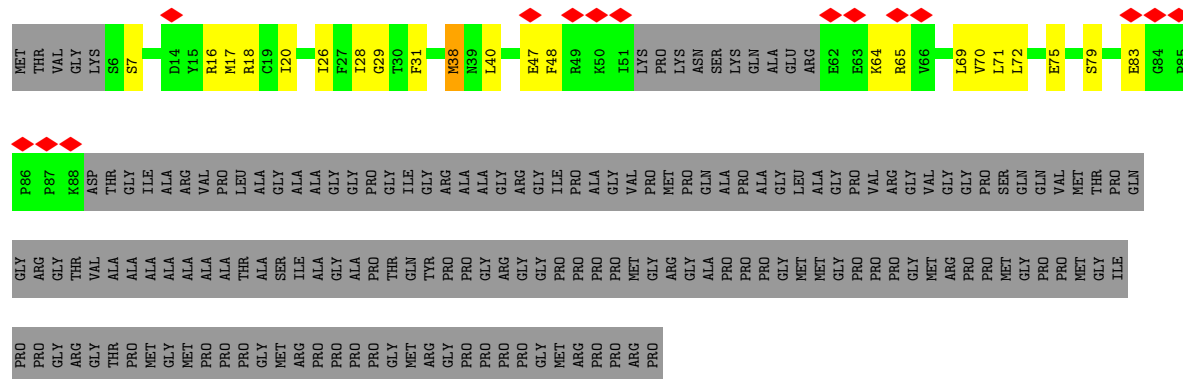
- Molecule 33: Splicing factor YJU2



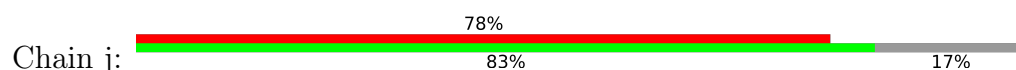
- Molecule 34: WD repeat-containing protein 70



- Molecule 35: Small nuclear ribonucleoprotein-associated proteins B and B'

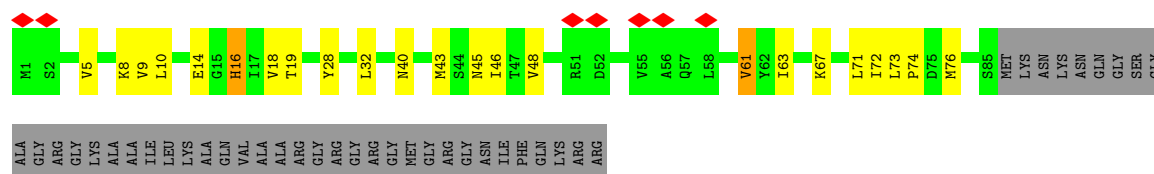


- Molecule 35: Small nuclear ribonucleoprotein-associated proteins B and B'

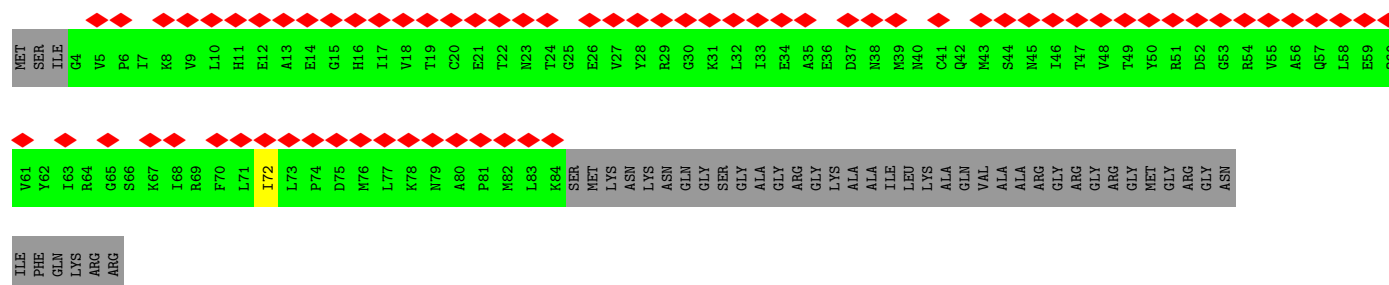




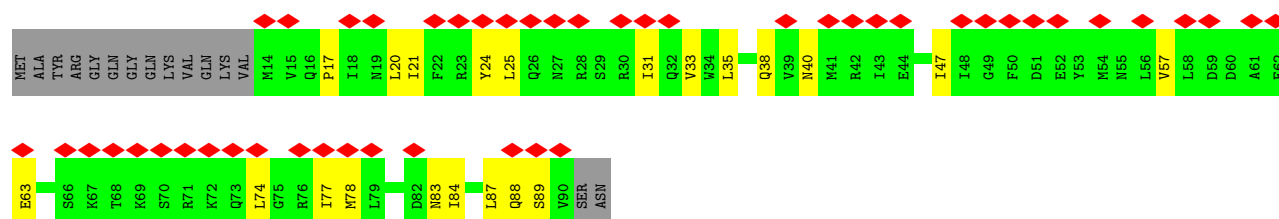
• Molecule 38: Small nuclear ribonucleoprotein Sm D3



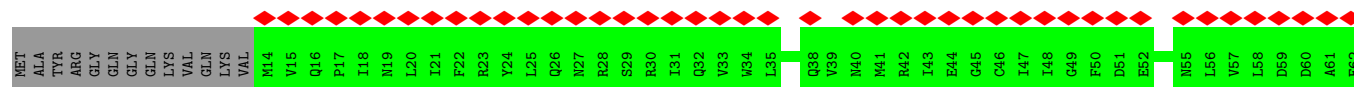
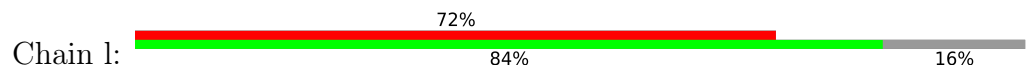
• Molecule 38: Small nuclear ribonucleoprotein Sm D3

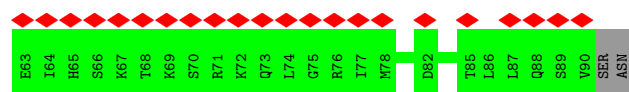


• Molecule 39: Small nuclear ribonucleoprotein E



• Molecule 39: Small nuclear ribonucleoprotein E

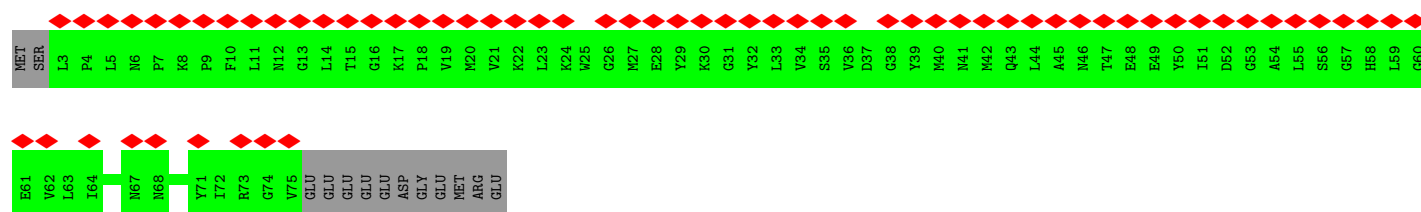
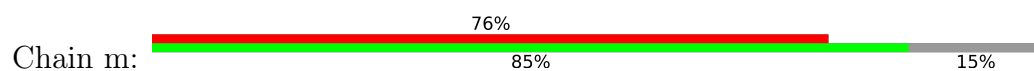




• Molecule 40: Small nuclear ribonucleoprotein F



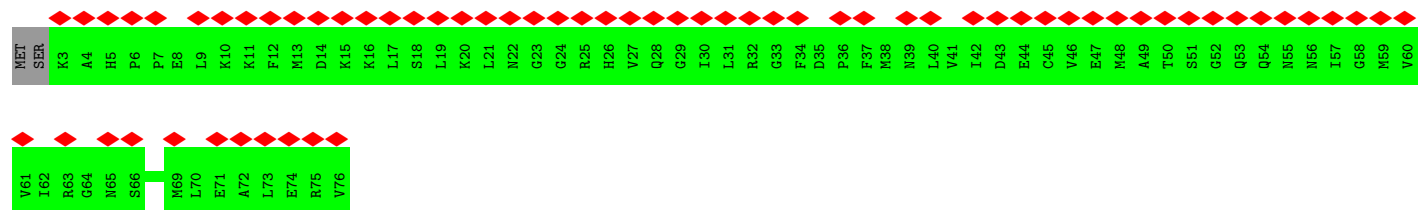
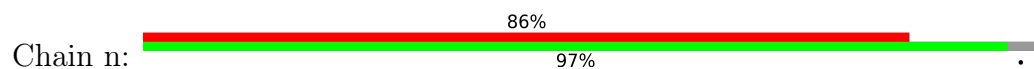
• Molecule 40: Small nuclear ribonucleoprotein F



• Molecule 41: Small nuclear ribonucleoprotein G



• Molecule 41: Small nuclear ribonucleoprotein G



• Molecule 42: Pre-mRNA-processing factor 19

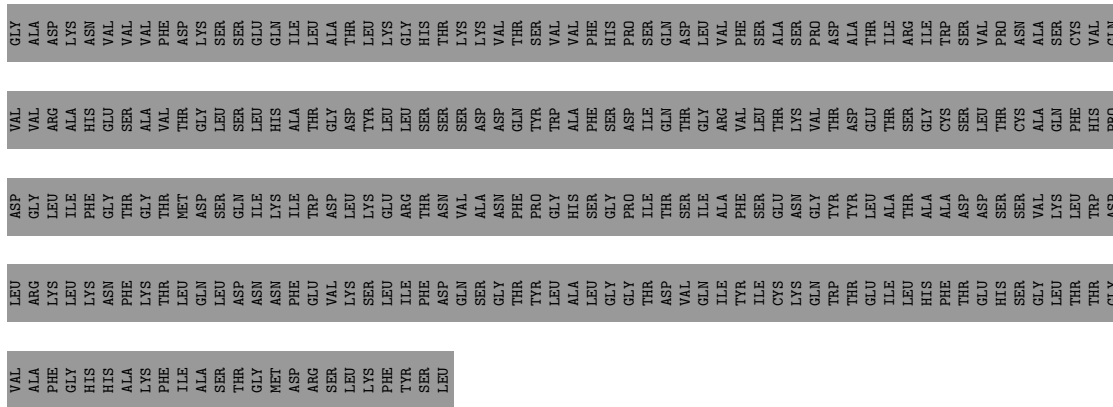


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I61	R62	P63	K64	P65	P66	S67	A68	T69	S70	I71	P72	A73	I74	L75	K76	A77	L78	Q79	D80	E81	W82	D83	A84	W85	M86	L87	H88	S89	L92	R93	Q94	Q95	L96	Q97	T98	T99	R100	Q101	E102	L103	S104	H105	A106	L107	Y108	Q109	H110	D111	A112	A113	C114	R115	D116	V117	A118	R119	L120	T121	
K122	E123	V124	T125	A126	A127	E128	E129	A130	L131	A132	T133	L134	K135	P136	Q137	ALA	GLY	LEU	ILE	VAL	PRO	GLN	ALA	VAL	PRO	SER	SER	PRO	GLN	PRO	GLY	GLY	PRO	MET	ASP	LEU	GLY	GLY	VAL	PRO	GLY	MET	ASP	THR	PRO	ASN	GLY	ILE	ILE	GLN	LYS	LEU	GLN	ASP	LYS	ALA	THR		
VAL	LEU	THR	THR	GLU	ARG	LYS	ARG	LYS	LYS	THR	VAL	PRO	GLU	GLU	GLY	HIS	GLU	LEU	THR	ARG	GLN	VAL	VAL	ALA	SER	HIS	VAL	VAL	GLY	LEU	HIS	SER	ILE	ALA	ALA	LEU	CYS	PRO	GLY	SER	SER	ASP	THR	THR	THR	ASN	LYS	ILE	ILE	LEU	THR	GLY	GLY						
ALA	ASP	ALA	ASN	GLU	VAL	VAL	PHE	SER	SER	GLU	GLN	ILE	ALA	LEU	THR	LEU	LEU	GLY	HIS	THR	SER	VAL	PHE	HIS	PRO	VAL	GLY	LEU	ASP	LEU	VAL	PHE	ASP	PRO	THR	ASP	ALA	THR	ILE	ARG	THR	VAL	PRO	ASN	ALA	SER	CYS	VAL	GLN	VAL	VAL								
VAL	ARG	ALA	HIS	GLU	SER	ALA	THR	SER	SER	LEU	HIS	THR	THR	ASP	TYR	LEU	SER	SER	ASP	GLN	TRP	VAL	ALA	PHE	SER	ASP	THR	VAL	GLY	ILE	GLN	THR	GLY	ARG	THR	ILE	CYS	SER	SER	VAL	THR	PRO	THR	CYS	ASN	ALA	GLN	PHE	HIS	THR	ASP								
GLY	LEU	ILE	PHE	THR	THR	GLY	MET	ASP	GLN	LYS	ILE	THR	ASP	LYS	ARG	GLY	THR	ASN	VAL	PHE	PRO	GLY	HIS	GLY	PRO	THR	ILE	VAL	ILE	ALA	PHE	GLY	ASN	GLY	THR	ALA	ASP	ASP	ALA	SER	SER	THR	VAL	VAL	LYS	LEU	THR	THR	THR	THR	ASP	LEU							
ARG	LYS	LEU	LYS	ASN	PHE	LYS	THR	THR	LEU	ASN	PHE	VAL	VAL	SER	LEU	ILE	PHE	GLN	SER	ASP	TYR	LEU	ALA	GLY	GLY	THR	VAL	GLN	ILE	TYR	ILE	CYS	LYS	GLN	TRP	THR	THR	GLU	GLU	ILE	THR	LEU	HIS	THR	THR	THR	THR	THR	THR	VAL									
ALA	PHE	GLY	HIS	HIS	ALA	PHE	ILE	ALA	THR	THR	ARG	SER	LEU	LYS	PHE	TYR	SER	MET	GLY	LEU	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR					

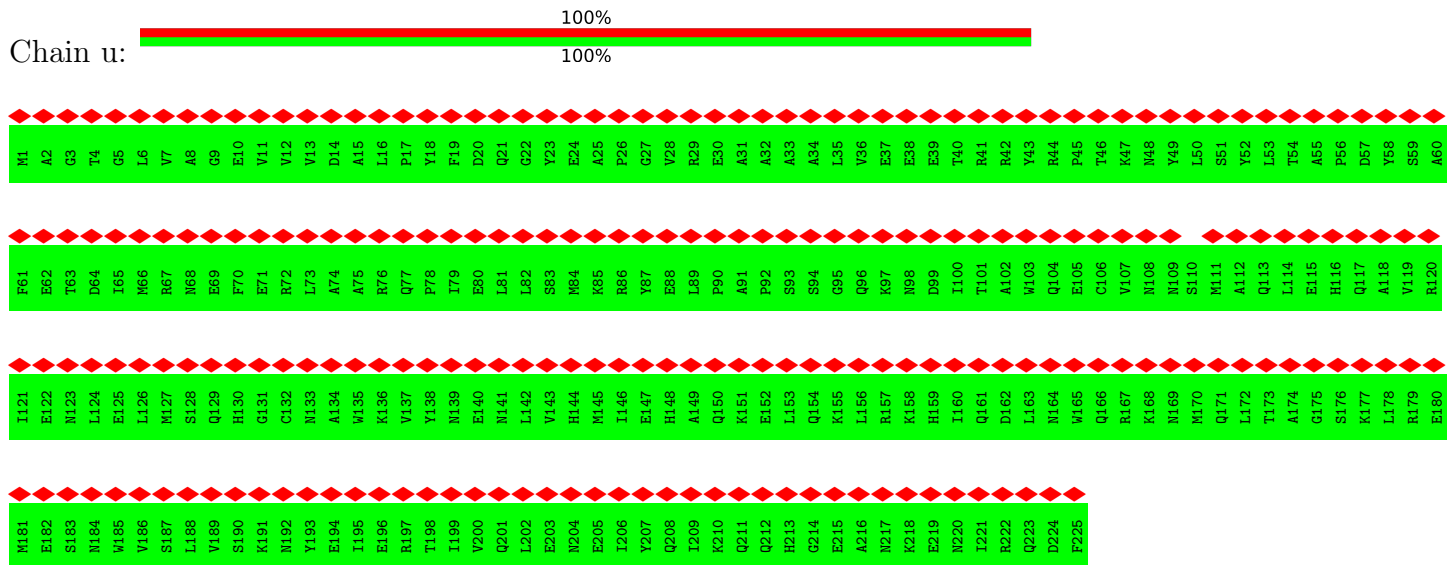
• Molecule 42: Pre-mRNA-processing factor 19



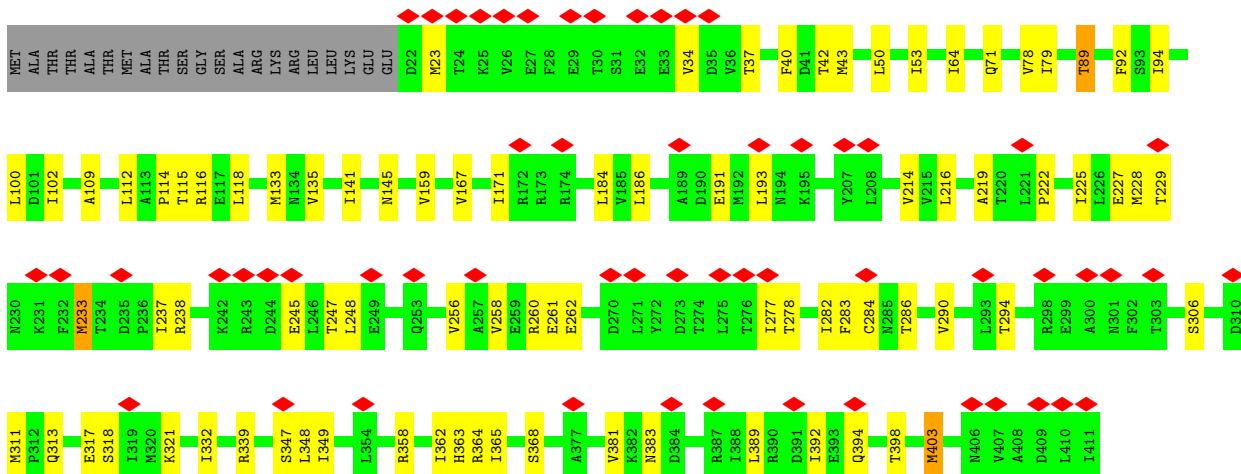
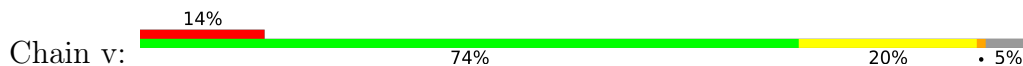
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I61	R62	P63	K64	P65	P66	S67	A68	T69	S70	I71	P72	A73	I74	L75	K76	A77	L78	Q79	D80	E81	W82	D83	A84	W85	M86	L87	H88	S89	F90	T91	L92	R93	Q94	Q95	L96	Q97	T98	T99	R100	Q101	E102	L103	S104	H105	A106	L107	Y108	Q109	H110	D111	A112	A113	C114	R115	D116	V117	A118	R119	L120																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
T121	K122	E123	V124	T125	A126	A127	R128	E129	A130	L131	A132	T133	L134	K135	PRO	GLN	ALA	GLY	LEU	ILE	VAL	VAL	VAL	VAL	PRO	SER	SER	PRO	GLN	VAL	ALA	GLY	GLY	PRO	MET	ASP	LEU	GLY	GLY	LEU	LEU	GLY	VAL	PRO	GLY	MET	THR	PRO	ASN	GLY	ILE	ILE	LEU	GLN	LYS	LEU	GLN	ASP	LYS	ALA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
THR	VAL	LEU	THR	THR	GLU	ARG	LYS	ARG	LYS	THR	VAL	PRO	GLU	VAL	LYS	PRO	GLU	GLY	LEU	SER	LYS	VAL	VAL	VAL	ALA	SER	SER	HIS	GLY	LEU	SER	ILE	PRO	GLY	ILE	LEU	ALA	ALA	LEU	LEU	ASP	GLY	LEU	CYS	PRO	GLY	SER	ASP	THR	ASN	LYS	ILE	LEU	LEU	THR	GLY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
GLY	ALA	ASP	LYS	ASN	VAL	VAL	PHE	LYS	SER	SER	GLN	ILE	ALA	THR	LEU	LEU	HIS	THR	LYS	VAL	THR	VAL	VAL	VAL	PHE	HIS	PRO	GLY	GLN	THR	ASP	LEU	VAL	PHE	LEU	SER	ILE	ARG	ILE	THR	ASP	THR	ASN	ALA	ALA	SER	CYS	VAL	VAL	GLN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
VAL	VAL	ARG	ALA	HIS	GLU	SER	ALA	GLY	LEU	SER	HIS	THR	GLY	ASP	TYR	LEU	SER	SER	SER	ASP	GLN	TYR	TRP	ALA	PHE	SER	ASP	ILE	GLN	THR	GLY	VAL	LEU	VAL	THR	LYS	VAL	THR	CYS	GLY	THR	ASP	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	



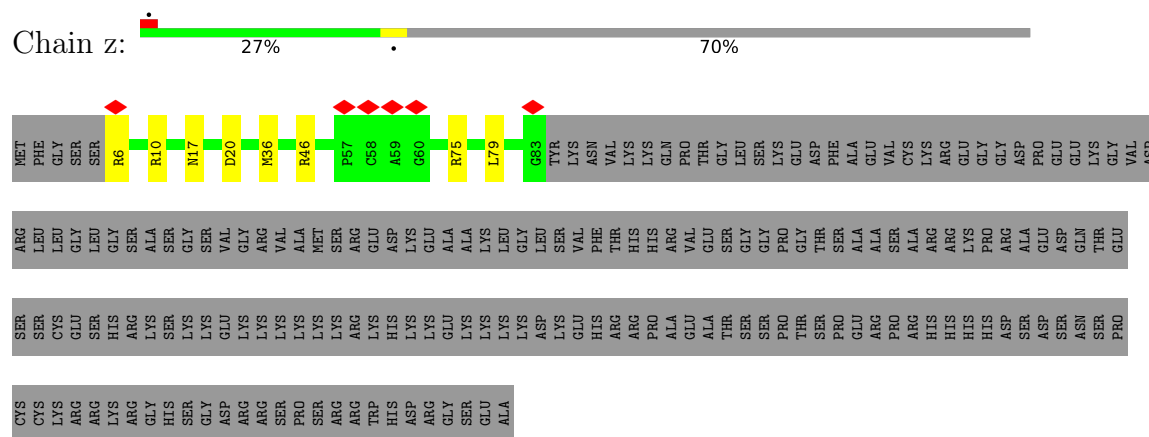
- Molecule 43: Pre-mRNA-splicing factor SPF27



- Molecule 44: Eukaryotic initiation factor 4A-III



- Molecule 45: Protein mago nashi homolog



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	86306	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1300	Depositor
Maximum defocus (nm)	1900	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	3.543	Depositor
Minimum map value	-1.168	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.066	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	689.472, 689.472, 689.472	wwPDB
Map dimensions	640, 640, 640	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0773, 1.0773, 1.0773	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SEP, ADP, GTP, MG, ATP, K, IHP, ZN, G5J

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	0	0.13	0/595	0.37	0/925
2	1	0.29	0/1063	0.66	4/1646 (0.2%)
3	2	0.13	0/1005	0.27	0/1561
4	4	0.13	0/3354	0.34	0/4515
5	5	0.15	0/2559	0.31	0/3977
6	6	0.14	0/1449	0.32	0/2257
7	A	0.15	0/19271	0.35	0/26142
8	B	0.16	0/7283	0.38	0/9895
9	C	0.15	0/15420	0.40	0/20908
10	D	0.14	0/2391	0.39	0/3241
11	E	0.15	0/3518	0.37	0/4795
12	F	0.16	0/4650	0.39	0/6373
13	G	0.16	0/4034	0.37	0/5508
14	H	0.13	0/218	0.40	0/303
15	I	0.17	0/1240	0.37	0/1664
16	J	0.16	0/1665	0.37	0/2237
17	K	0.15	0/3089	0.39	0/4223
18	L	0.11	0/1160	0.30	0/1559
19	M	0.19	0/1269	0.49	0/1736
20	N	0.15	0/878	0.36	0/1166
21	O	0.14	0/1268	0.38	0/1714
22	P	0.11	0/286	0.25	0/354
23	Q	0.10	0/6575	0.26	0/9165
24	R	0.20	0/864	0.50	0/1149
25	S	0.29	0/324	0.58	0/430
26	T	0.17	0/6289	0.45	0/8507
27	U	0.15	0/918	0.37	0/1247
28	V	0.14	0/3835	0.36	0/5164
29	X	0.14	0/1687	0.35	0/2262
33	Y	0.19	0/1680	0.47	0/2260
34	Z	0.13	0/2744	0.39	0/3710
35	a	0.17	0/599	0.44	0/798

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
35	h	0.11	0/358	0.32	0/495
36	b	0.14	0/657	0.44	0/888
36	i	0.12	0/400	0.31	0/556
37	c	0.22	0/805	0.49	0/1081
37	j	0.11	0/485	0.33	0/674
38	d	0.20	0/671	0.51	0/904
38	k	0.10	0/398	0.26	0/552
39	e	0.21	0/646	0.52	0/867
39	l	0.11	0/380	0.36	0/528
40	f	0.31	0/579	0.69	0/783
40	m	0.11	0/355	0.31	0/490
41	g	0.25	0/595	0.66	0/794
41	n	0.11	0/363	0.35	0/501
42	q	0.12	0/683	0.24	0/954
42	r	0.14	0/673	0.26	0/940
42	s	0.20	0/688	0.28	0/961
42	t	0.12	0/678	0.25	0/947
43	u	0.13	0/1116	0.24	0/1554
44	v	0.15	0/3179	0.38	0/4291
45	w	0.17	0/1225	0.45	0/1648
46	x	0.17	0/748	0.50	0/1012
47	z	0.18	0/622	0.46	0/836
All	All	0.15	0/119484	0.38	4/163647 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	1	211	U	P-O3'-C3'	-8.89	106.86	120.20
2	1	207	A	P-O3'-C3'	-7.64	108.73	120.20
2	1	212	U	P-O3'-C3'	-5.57	111.85	120.20
2	1	206	C	P-O3'-C3'	-5.03	112.66	120.20

There are no chirality outliers.

There are no planarity outliers.

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	0	533	0	273	3	0
2	1	957	0	486	19	0
3	2	898	0	451	6	0
4	4	3283	0	3269	40	0
5	5	2296	0	1163	21	0
6	6	1327	0	650	12	0
7	A	18751	0	18636	152	0
8	B	7122	0	7132	68	0
9	C	15118	0	14962	205	0
10	D	2337	0	2270	20	0
11	E	3485	0	2656	29	0
12	F	4580	0	3543	41	0
13	G	3969	0	3108	25	0
14	H	219	0	98	0	0
15	I	1226	0	1114	12	0
16	J	1648	0	1698	17	0
17	K	3014	0	2792	22	0
18	L	1139	0	1136	16	0
19	M	1249	0	1152	17	0
20	N	866	0	837	3	0
21	O	1236	0	1210	19	0
22	P	288	0	78	0	0
23	Q	6579	0	2831	3	0
24	R	852	0	853	10	0
25	S	319	0	321	9	0
26	T	6173	0	6146	83	0
27	U	909	0	722	8	0
28	V	3768	0	3833	39	0
29	X	1660	0	1646	17	0
30	X1	100	0	22	0	0
31	X2	90	0	20	0	0
32	X3	105	0	23	0	0
33	Y	1653	0	1575	18	0
34	Z	2681	0	2619	27	0
35	a	591	0	613	17	0
35	h	360	0	149	2	0
36	b	649	0	693	16	0
36	i	401	0	165	1	0
37	c	796	0	821	18	0
37	j	487	0	199	0	0
38	d	663	0	680	15	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	k	399	0	176	1	0
39	e	638	0	657	17	0
39	l	381	0	159	0	0
40	f	567	0	575	20	0
40	m	356	0	156	0	0
41	g	584	0	610	14	0
41	n	364	0	160	0	0
42	q	684	0	308	0	0
42	r	674	0	305	1	0
42	s	689	0	313	0	0
42	t	679	0	306	0	0
43	u	1117	0	514	0	0
44	v	3130	0	3173	47	0
45	w	1196	0	1182	22	0
46	x	730	0	690	11	0
47	z	611	0	591	5	0
48	6	6	0	0	0	0
48	B	1	0	0	0	0
48	C	1	0	0	0	0
48	v	1	0	0	0	0
49	6	2	0	0	0	0
50	A	36	0	6	0	0
51	B	32	0	12	1	0
52	C	54	0	24	1	0
53	S	1	0	0	0	0
53	Y	1	0	0	0	0
54	v	31	0	12	0	0
All	All	117342	0	102574	1083	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 5.

All (1083) 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)
33:Y:46:CYS:SG	33:Y:83:CYS:HB3	2.07	0.92
44:v:229:THR:O	44:v:233:MET:HB3	1.69	0.92
46:x:89:ILE:HA	46:x:92:LYS:HD2	1.60	0.82
9:C:1367:MET:HE1	9:C:1376:CYS:HB3	1.63	0.79
13:G:439:ALA:O	13:G:443:ILE:HB	1.83	0.78
2:1:208:A:H2	7:A:852:VAL:HG11	1.49	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
44:v:191:GLU:HB2	44:v:339:ARG:HH12	1.50	0.76
7:A:79:ARG:HH12	7:A:82:ARG:HB2	1.52	0.74
18:L:28:ARG:HH22	19:M:35:GLN:HG3	1.53	0.74
44:v:294:THR:HG21	44:v:306:SER:HB3	1.69	0.74
40:f:20:MET:SD	40:f:30:LYS:HB2	2.28	0.73
41:g:21:LEU:HD11	41:g:62:ILE:HD11	1.71	0.72
26:T:1107:LEU:HA	26:T:1110:MET:HE1	1.72	0.72
2:1:208:A:C2	7:A:852:VAL:HG11	2.24	0.71
15:I:38:GLU:HG3	15:I:41:LYS:HB3	1.73	0.70
12:F:511:LEU:HD13	12:F:543:ARG:HD3	1.72	0.70
9:C:1558:PRO:HG2	9:C:1693:ARG:HH12	1.57	0.70
29:X:138:TRP:HB3	29:X:149:LEU:HD21	1.74	0.70
35:a:17:MET:HG2	35:a:31:PHE:HB2	1.73	0.69
9:C:688:THR:HB	9:C:868:ILE:HG13	1.75	0.68
34:Z:208:PHE:HB2	34:Z:222:ARG:HG2	1.75	0.68
9:C:1450:LEU:HD22	9:C:1486:ARG:HB3	1.76	0.68
5:5:88:A:H61	40:f:40:MET:HG2	1.58	0.68
5:5:97:G:H1	5:5:116:U:H3	1.40	0.68
39:e:63:GLU:HG3	39:e:74:LEU:HD21	1.76	0.68
45:w:56:LYS:HA	45:w:59:MET:HG2	1.75	0.67
9:C:1606:ASP:HB3	9:C:1609:LEU:HB2	1.75	0.67
26:T:896:LEU:HG	26:T:947:VAL:HG22	1.76	0.67
39:e:31:ILE:HG13	39:e:87:LEU:HD21	1.76	0.67
9:C:1561:VAL:HA	9:C:1662:ILE:O	1.95	0.67
26:T:986:ARG:HB2	26:T:991:GLU:HG3	1.77	0.66
9:C:1739:GLU:HG3	9:C:1744:THR:HB	1.77	0.66
19:M:70:ASN:HB3	19:M:73:LEU:HB2	1.78	0.66
13:G:439:ALA:HA	13:G:443:ILE:HD12	1.77	0.66
7:A:1807:ILE:HB	7:A:1820:LYS:HB3	1.78	0.65
9:C:728:ARG:HH21	9:C:786:HIS:HB2	1.60	0.65
9:C:1225:VAL:HG12	9:C:1268:ILE:HG22	1.76	0.65
9:C:489:TYR:HB2	9:C:515:MET:HG3	1.78	0.65
34:Z:443:SER:HA	34:Z:473:SER:HB3	1.78	0.65
39:e:77:ILE:HG22	40:f:73:ARG:HB3	1.78	0.65
7:A:1971:LEU:HD23	7:A:1975:GLU:HB3	1.79	0.65
39:e:35:LEU:HB3	39:e:38:GLN:HB2	1.78	0.65
15:I:39:LEU:HB3	15:I:40:PRO:HD3	1.78	0.65
4:4:286:VAL:HG22	4:4:297:THR:HG22	1.79	0.65
9:C:1948:MET:HA	9:C:1953:MET:HB3	1.79	0.65
12:F:701:GLY:HA2	12:F:704:TRP:HD1	1.62	0.65
29:X:148:ALA:HA	29:X:178:ILE:HG12	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:4:159:VAL:HB	4:4:169:ASN:HB3	1.78	0.64
26:T:742:ASP:HB2	26:T:817:ILE:H	1.62	0.64
41:g:20:LYS:HB2	41:g:69:MET:HB3	1.80	0.64
8:B:734:ALA:HB3	8:B:745:LEU:HB3	1.80	0.64
9:C:1799:SER:HA	9:C:1830:GLU:HG3	1.79	0.64
26:T:1085:LYS:HE2	26:T:1091:VAL:HG11	1.79	0.64
33:Y:100:MET:HE2	33:Y:104:ALA:HB3	1.79	0.64
17:K:343:PRO:HG3	17:K:365:ARG:HH21	1.62	0.64
7:A:1763:LEU:HD13	7:A:1771:LEU:HD21	1.79	0.63
7:A:345:PRO:HG2	25:S:140:VAL:HG22	1.80	0.63
9:C:785:HIS:HB2	9:C:809:LEU:HD11	1.80	0.63
20:N:196:ASN:HB2	20:N:199:LYS:HB3	1.80	0.63
9:C:1001:TYR:O	9:C:1005:LEU:HB2	1.98	0.63
7:A:664:HIS:HB3	16:J:216:LYS:HE2	1.79	0.63
37:c:51:LYS:HB2	37:c:73:MET:HE2	1.81	0.63
9:C:933:PRO:HG3	9:C:943:LEU:HD22	1.81	0.63
19:M:53:LEU:HA	19:M:56:LEU:HD12	1.80	0.63
28:V:555:LEU:HD12	28:V:586:PHE:HZ	1.64	0.63
9:C:544:MET:HG2	9:C:817:TRP:HB3	1.81	0.63
2:1:13:A:H3'	2:1:14:G:H21	1.63	0.62
12:F:428:GLN:HB2	12:F:431:ASP:HB2	1.78	0.62
35:a:47:GLU:HB3	35:a:65:ARG:HG2	1.81	0.62
9:C:620:LEU:HA	9:C:625:GLY:HA3	1.82	0.62
7:A:1694:ILE:HD12	34:Z:284:ALA:HB2	1.81	0.62
12:F:720:ILE:HA	12:F:723:MET:HB2	1.81	0.62
16:J:3:LEU:O	16:J:7:LEU:CB	2.48	0.62
34:Z:457:GLU:HG2	34:Z:459:ARG:H	1.65	0.62
7:A:2095:ASP:HB2	7:A:2258:ARG:HD2	1.80	0.62
9:C:541:ILE:HD11	9:C:614:LEU:HD13	1.81	0.62
9:C:1381:PRO:HG2	9:C:1458:LEU:HD12	1.80	0.62
33:Y:36:MET:HE3	33:Y:53:GLY:HA2	1.82	0.62
9:C:1120:LYS:HG3	9:C:1131:GLN:HE22	1.65	0.62
27:U:133:GLU:HA	27:U:136:ARG:HE	1.64	0.61
9:C:1565:SER:HB3	9:C:1568:GLN:HB2	1.82	0.61
29:X:148:ALA:HB2	29:X:177:MET:HA	1.82	0.61
9:C:743:LEU:HD23	9:C:747:THR:HG22	1.82	0.61
38:d:43:MET:HB3	38:d:46:ILE:HD11	1.82	0.61
44:v:278:THR:HG21	44:v:347:SER:HB2	1.82	0.61
4:4:137:GLU:HB2	4:4:151:VAL:HG23	1.83	0.61
26:T:1158:ARG:HD2	26:T:1162:ARG:HG2	1.82	0.61
36:b:16:THR:O	36:b:69:ILE:HB	2.01	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:1465:PRO:HD3	9:C:1727:HIS:HB3	1.83	0.61
38:d:43:MET:HB2	38:d:61:VAL:HG13	1.82	0.61
39:e:25:LEU:HD13	39:e:47:ILE:HG13	1.83	0.61
7:A:569:VAL:HG13	7:A:573:GLN:HB2	1.82	0.61
9:C:1375:ARG:HB2	9:C:1448:ILE:HA	1.83	0.61
40:f:42:MET:HB3	40:f:64:ILE:HB	1.81	0.61
18:L:132:ARG:HH21	19:M:165:GLU:HG2	1.64	0.61
7:A:40:LEU:HD11	7:A:44:ARG:HH21	1.65	0.60
8:B:678:THR:HA	8:B:811:THR:HG21	1.84	0.60
9:C:1459:ILE:HD12	9:C:1468:GLU:HG3	1.81	0.60
26:T:798:VAL:HG23	26:T:799:ARG:HG3	1.82	0.60
26:T:963:CYS:HA	26:T:968:SER:HB3	1.84	0.60
5:5:93:U:H1'	37:c:104:ASP:HB3	1.83	0.60
28:V:501:ARG:HE	47:z:46:ARG:HH12	1.50	0.60
12:F:707:TRP:HD1	12:F:710:PHE:HB3	1.65	0.60
28:V:178:ILE:HA	28:V:181:ILE:HG22	1.84	0.60
36:b:19:LEU:HD23	36:b:23:THR:HB	1.81	0.60
26:T:972:LEU:HD11	26:T:1048:LEU:HB3	1.84	0.59
26:T:1075:ALA:HB2	26:T:1144:LEU:HD13	1.84	0.59
36:b:20:LYS:HD3	36:b:66:ARG:HH21	1.67	0.59
26:T:1151:VAL:HG13	26:T:1153:GLN:HG2	1.83	0.59
34:Z:182:THR:HG22	34:Z:183:LYS:H	1.66	0.59
7:A:1402:ARG:HD3	7:A:1402:ARG:H	1.65	0.59
9:C:1190:LEU:HD23	9:C:1200:VAL:HG22	1.84	0.59
40:f:17:LYS:HE3	40:f:75:VAL:HG13	1.84	0.59
9:C:1604:LEU:HD21	9:C:1609:LEU:HB3	1.85	0.59
9:C:971:LYS:HB2	9:C:980:GLN:HB3	1.84	0.59
12:F:620:THR:HG22	12:F:631:MET:HG3	1.83	0.59
17:K:420:THR:HG22	17:K:428:VAL:HB	1.85	0.59
40:f:28:GLU:HG3	40:f:50:TYR:HB2	1.84	0.59
13:G:205:LEU:HD23	13:G:206:LEU:HD23	1.84	0.59
26:T:900:SER:HB3	26:T:947:VAL:HG21	1.84	0.59
7:A:121:HIS:HB2	7:A:126:ILE:HG22	1.83	0.59
29:X:156:PHE:HB3	29:X:176:GLU:HG2	1.85	0.59
44:v:282:ILE:HB	44:v:332:ILE:HG12	1.85	0.59
8:B:564:THR:HG21	8:B:576:ILE:HA	1.85	0.59
26:T:1122:LEU:HD11	26:T:1128:GLU:HB2	1.85	0.59
39:e:88:GLN:HG3	41:g:57:ILE:HG12	1.84	0.59
19:M:17:LEU:HB3	19:M:56:LEU:HD11	1.83	0.59
44:v:79:ILE:HG22	44:v:216:LEU:HD12	1.84	0.58
9:C:1281:GLN:HG3	9:C:1283:PRO:HD3	1.83	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:717:GLU:HA	12:F:720:ILE:HB	1.85	0.58
26:T:1180:GLU:HA	26:T:1183:LEU:HG	1.85	0.58
7:A:378:PHE:HB3	8:B:342:ARG:HH21	1.68	0.58
7:A:982:GLU:HG3	7:A:1169:GLN:HG3	1.85	0.58
17:K:455:GLN:HG2	17:K:456:PRO:HD2	1.85	0.58
38:d:40:ASN:HA	38:d:63:ILE:O	2.03	0.58
44:v:349:ILE:HG12	44:v:368:SER:HB3	1.85	0.58
9:C:2038:LEU:HD11	9:C:2089:LYS:HG2	1.83	0.58
12:F:494:GLU:HA	12:F:498:GLY:H	1.66	0.58
36:b:80:LEU:HD11	37:c:66:VAL:HG11	1.86	0.58
4:4:350:LEU:HG	4:4:355:ALA:HB3	1.86	0.58
8:B:715:GLY:HA2	8:B:729:ALA:HB1	1.85	0.58
13:G:440:LEU:HD23	13:G:452:PHE:CZ	2.39	0.58
36:b:4:VAL:HG22	36:b:36:MET:HE3	1.85	0.58
4:4:78:PRO:HG2	4:4:438:ILE:HG12	1.86	0.58
18:L:25:ALA:HB3	18:L:28:ARG:HD3	1.86	0.58
26:T:579:MET:HE3	26:T:580:ILE:H	1.68	0.58
47:z:6:ARG:HE	47:z:10:ARG:HH22	1.52	0.58
7:A:1510:GLU:HA	7:A:1514:LYS:HD3	1.85	0.58
13:G:440:LEU:O	13:G:440:LEU:HD22	2.03	0.58
28:V:206:SER:HA	28:V:255:THR:HG21	1.86	0.58
34:Z:236:GLN:HG2	34:Z:291:TRP:HD1	1.69	0.58
2:1:211:U:C6	2:1:211:U:H5'	2.39	0.57
16:J:3:LEU:O	16:J:7:LEU:HB3	2.04	0.57
26:T:631:GLY:HA2	26:T:634:LEU:HD23	1.86	0.57
28:V:615:LEU:HD12	28:V:616:LEU:HG	1.86	0.57
26:T:430:VAL:HG21	26:T:887:GLN:HB3	1.85	0.57
8:B:768:GLN:HE22	8:B:809:ILE:HG12	1.69	0.57
12:F:533:TYR:HB3	12:F:536:GLU:HB2	1.86	0.57
45:w:12:TYR:HE1	45:w:23:PHE:HB2	1.68	0.57
35:a:18:ARG:HG3	35:a:26:ILE:HG23	1.87	0.57
38:d:18:VAL:HG23	38:d:73:LEU:HA	1.86	0.57
4:4:89:HIS:HA	4:4:114:LYS:HZ1	1.69	0.57
34:Z:211:PHE:HA	34:Z:214:MET:HE2	1.85	0.57
7:A:2087:THR:HB	7:A:2112:LYS:HG2	1.87	0.57
26:T:984:PHE:HB2	26:T:998:ARG:HH21	1.69	0.57
8:B:474:LEU:HD11	8:B:501:ILE:HG12	1.85	0.57
34:Z:500:ASP:HB3	34:Z:503:LYS:HB2	1.86	0.57
7:A:1980:GLU:HG3	24:R:70:LEU:HD23	1.86	0.57
7:A:2190:PRO:HA	7:A:2193:VAL:HG12	1.87	0.57
8:B:109:LEU:HD11	8:B:539:ILE:HG22	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:1662:ILE:HA	9:C:1703:VAL:O	2.05	0.57
9:C:2108:PHE:HB3	9:C:2118:GLN:HB2	1.87	0.57
29:X:119:ILE:HD13	29:X:151:ALA:HB1	1.85	0.57
9:C:603:ARG:HB3	9:C:1540:LEU:HD12	1.87	0.56
13:G:449:GLN:HA	13:G:452:PHE:HB2	1.87	0.56
35:a:40:LEU:HB2	35:a:72:LEU:HB3	1.87	0.56
7:A:1949:ARG:HD3	7:A:1986:LEU:HD13	1.85	0.56
38:d:5:VAL:HA	38:d:8:LYS:HD2	1.87	0.56
9:C:902:ASN:HB2	9:C:964:LEU:HD21	1.88	0.56
17:K:314:ILE:HD12	17:K:324:HIS:HB2	1.87	0.56
40:f:51:ILE:HG12	40:f:56:SER:HB2	1.87	0.56
7:A:1296:GLN:HG2	7:A:1327:MET:HE1	1.87	0.56
28:V:237:LEU:HD11	28:V:259:PHE:HD2	1.71	0.56
2:1:13:A:H61	6:6:7:U:H3	1.54	0.56
2:1:208:A:H4'	2:1:209:C:OP2	2.05	0.56
36:b:43:VAL:HG21	36:b:58:LEU:HB2	1.87	0.56
17:K:220:VAL:HG13	17:K:230:ILE:HG12	1.87	0.56
9:C:1375:ARG:HH12	9:C:1423:ASN:HA	1.70	0.56
7:A:362:ARG:HG3	7:A:364:SER:H	1.71	0.56
9:C:1416:LEU:HD22	9:C:1444:ASN:HD21	1.70	0.56
10:D:233:GLY:HA3	10:D:262:TRP:HH2	1.70	0.56
35:a:71:LEU:HD12	38:d:71:LEU:HD23	1.88	0.56
7:A:1307:MET:HB3	7:A:1310:ARG:HG3	1.89	0.55
10:D:132:THR:HG21	10:D:146:ARG:HE	1.69	0.55
10:D:178:LEU:HB3	10:D:188:GLN:HG3	1.88	0.55
12:F:613:MET:HE1	12:F:643:TYR:HB2	1.87	0.55
19:M:66:LEU:HD21	19:M:106:CYS:HB3	1.88	0.55
9:C:2041:LEU:HB2	9:C:2088:ALA:HB3	1.88	0.55
11:E:188:ARG:HA	11:E:191:LEU:HD22	1.89	0.55
12:F:613:MET:HE2	12:F:639:ALA:HA	1.88	0.55
18:L:65:ARG:HE	18:L:107:MET:HE1	1.71	0.55
9:C:1145:LYS:HD3	26:T:675:ARG:HE	1.72	0.55
9:C:1561:VAL:HG22	9:C:1662:ILE:HB	1.87	0.55
45:w:10:ARG:HB3	45:w:91:GLU:HB2	1.89	0.55
12:F:652:TYR:CE2	12:F:674:MET:HE3	2.42	0.55
15:I:41:LYS:HE2	15:I:45:TRP:HE1	1.71	0.55
25:S:142:ALA:HA	25:S:145:THR:HG22	1.89	0.55
7:A:147:MET:O	7:A:151:MET:HG3	2.07	0.55
9:C:1190:LEU:HD21	9:C:1198:LEU:HB3	1.87	0.55
26:T:744:LEU:HB3	26:T:820:VAL:HG23	1.89	0.55
4:4:167:MET:HG3	7:A:2220:PRO:HB2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:c:65:MET:HE3	37:c:65:MET:HA	1.89	0.55
7:A:1000:ILE:HG13	7:A:1001:VAL:HG23	1.89	0.55
19:M:58:VAL:HG12	19:M:61:LEU:HD13	1.88	0.55
7:A:1895:ALA:HB2	7:A:1944:HIS:HB2	1.88	0.55
46:x:67:GLN:HB2	46:x:152:ARG:HA	1.89	0.55
9:C:732:GLY:HA2	9:C:784:ILE:HD13	1.87	0.55
9:C:1062:LEU:HD23	9:C:1081:MET:HE2	1.88	0.55
9:C:1840:THR:HG22	9:C:1845:LEU:HG	1.89	0.55
28:V:352:ILE:HG22	28:V:353:ILE:HD12	1.89	0.55
35:h:70:VAL:HA	38:k:72:ILE:HA	1.89	0.55
45:w:15:HIS:HB3	45:w:86:GLY:HA2	1.89	0.55
9:C:1146:LYS:HE2	9:C:1148:PHE:HB2	1.89	0.54
15:I:95:GLY:HA3	19:M:26:GLU:HB2	1.88	0.54
7:A:95:MET:HB2	7:A:503:MET:HE1	1.87	0.54
9:C:836:PRO:HG3	9:C:1079:ALA:HB1	1.89	0.54
4:4:96:VAL:HG23	4:4:106:THR:HG22	1.90	0.54
7:A:48:LYS:HA	7:A:53:PHE:HE1	1.71	0.54
9:C:115:VAL:HG12	9:C:175:LEU:HD21	1.89	0.54
35:a:70:VAL:HG22	38:d:72:ILE:HG22	1.89	0.54
7:A:224:THR:HG23	7:A:226:GLN:HG2	1.89	0.54
17:K:399:LYS:HB2	17:K:406:ILE:HD11	1.88	0.54
28:V:246:ARG:HH22	28:V:247:ARG:HE	1.55	0.54
33:Y:178:LEU:HA	33:Y:181:GLU:HB3	1.88	0.54
8:B:514:TYR:HB2	8:B:521:ASP:HB3	1.90	0.54
9:C:1558:PRO:HD2	9:C:1693:ARG:HH22	1.72	0.54
46:x:96:TYR:HD2	46:x:130:ALA:HA	1.72	0.54
4:4:102:ASP:HB3	4:4:118:LYS:HB3	1.90	0.54
9:C:602:GLU:HA	9:C:605:TYR:HD2	1.73	0.54
2:1:192:U:H2'	2:1:193:U:C6	2.42	0.54
9:C:1336:PHE:HA	9:C:1339:VAL:HG12	1.90	0.54
9:C:1545:PRO:HA	9:C:1548:HIS:HB2	1.90	0.54
9:C:1923:ILE:HD12	9:C:1946:ALA:HA	1.88	0.54
9:C:2064:TRP:CD1	9:C:2084:LEU:HB2	2.43	0.54
10:D:343:ILE:HD11	10:D:351:LEU:HB3	1.88	0.54
11:E:206:ARG:HE	11:E:207:GLY:H	1.55	0.54
6:6:2:U:H5''	19:M:42:ASN:HB3	1.89	0.54
12:F:616:TYR:HD1	12:F:631:MET:HE1	1.73	0.54
26:T:1028:CYS:HB2	26:T:1033:ILE:HB	1.90	0.54
44:v:193:LEU:HD13	44:v:228:MET:HG3	1.88	0.54
4:4:111:GLY:HA2	4:4:136:ILE:HG13	1.89	0.54
7:A:1498:TRP:HA	7:A:1501:LEU:HD22	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:831:THR:HA	9:C:844:LEU:HD12	1.90	0.54
9:C:1223:ILE:HG22	9:C:1270:VAL:HG22	1.88	0.54
2:1:207:A:H5''	7:A:1262:LYS:HD3	1.90	0.53
9:C:688:THR:O	9:C:868:ILE:HA	2.08	0.53
4:4:378:ILE:HD12	4:4:403:LEU:HD13	1.90	0.53
7:A:1771:LEU:HA	7:A:1777:ILE:HD12	1.90	0.53
26:T:832:ASN:HB3	26:T:835:ILE:HG22	1.89	0.53
26:T:835:ILE:HG23	26:T:837:MET:HG2	1.90	0.53
33:Y:138:GLU:O	33:Y:142:LYS:HG2	2.09	0.53
8:B:681:LYS:HD2	8:B:802:HIS:HB3	1.90	0.53
9:C:728:ARG:HH22	9:C:789:MET:HG2	1.73	0.53
9:C:1228:VAL:HG11	9:C:1264:PRO:HD2	1.90	0.53
12:F:518:PRO:HB3	12:F:556:ILE:HD11	1.89	0.53
45:w:86:GLY:HA3	45:w:105:LYS:HD2	1.90	0.53
8:B:103:THR:HG22	8:B:105:MET:H	1.73	0.53
12:F:731:GLN:HG3	12:F:735:ASN:HD22	1.74	0.53
8:B:224:GLY:HA3	8:B:438:ILE:HD12	1.90	0.53
12:F:701:GLY:HA2	12:F:704:TRP:CD1	2.44	0.53
4:4:438:ILE:HB	4:4:451:PHE:HB2	1.91	0.53
11:E:519:ASP:HA	11:E:522:LYS:HD2	1.91	0.53
7:A:371:LEU:HD12	7:A:372:PRO:HD2	1.90	0.53
8:B:507:VAL:HA	8:B:568:PRO:HD3	1.90	0.53
10:D:227:LEU:HD11	10:D:230:THR:HG23	1.91	0.53
2:1:192:U:H2'	2:1:193:U:H6	1.73	0.53
9:C:439:ARG:HG3	9:C:440:LYS:HG2	1.90	0.53
9:C:1348:VAL:HA	9:C:1512:PHE:HB2	1.90	0.53
28:V:263:LEU:HD22	28:V:268:VAL:HG21	1.90	0.53
45:w:37:ALA:HB1	45:w:47:MET:HE1	1.91	0.53
35:a:18:ARG:HH11	35:a:26:ILE:HD12	1.73	0.53
9:C:1065:ALA:HB3	9:C:1081:MET:HE1	1.91	0.53
7:A:1260:VAL:HG21	7:A:1325:LEU:HB3	1.92	0.52
25:S:120:CYS:SG	25:S:123:CYS:HB2	2.49	0.52
26:T:545:ILE:HD13	26:T:569:LEU:HD21	1.90	0.52
7:A:608:LEU:HD13	7:A:632:ALA:HB1	1.90	0.52
20:N:51:PRO:HA	20:N:54:VAL:HG22	1.92	0.52
28:V:212:THR:HG23	28:V:259:PHE:HD1	1.73	0.52
24:R:55:ARG:HH21	24:R:56:TYR:HB2	1.74	0.52
34:Z:166:PRO:HB3	34:Z:436:LYS:HE3	1.92	0.52
41:g:7:PRO:HG2	41:g:38:MET:HG3	1.90	0.52
4:4:445:LYS:HG3	4:4:447:ARG:H	1.74	0.52
44:v:256:VAL:HG12	44:v:403:MET:HG2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:6:52:A:H2'	6:6:53:G:C8	2.45	0.52
9:C:725:VAL:HB	9:C:731:THR:HG22	1.92	0.52
13:G:333:PHE:O	13:G:337:MET:HG2	2.09	0.52
26:T:1159:GLN:O	26:T:1163:ARG:HB2	2.10	0.52
4:4:119:ILE:HG23	4:4:121:GLU:H	1.75	0.52
45:w:88:GLN:HE22	45:w:106:ILE:H	1.57	0.52
9:C:1546:VAL:HG23	9:C:1662:ILE:HG21	1.92	0.52
36:b:17:ILE:HB	36:b:25:VAL:HG12	1.92	0.52
7:A:2230:LEU:HA	7:A:2256:TYR:HA	1.92	0.52
9:C:2067:VAL:HG22	9:C:2079:ILE:HG13	1.91	0.52
4:4:67:LEU:HD13	4:4:384:GLU:HG3	1.92	0.51
13:G:190:THR:HG23	13:G:193:GLN:H	1.75	0.51
26:T:742:ASP:HB2	26:T:817:ILE:N	2.25	0.51
26:T:954:ALA:O	26:T:958:MET:HG3	2.09	0.51
7:A:1956:PRO:HG3	7:A:1971:LEU:HD21	1.91	0.51
10:D:89:LEU:HD22	10:D:106:LYS:HG2	1.92	0.51
2:1:12:A:H2	6:6:8:A:H62	1.57	0.51
9:C:547:LEU:HA	9:C:550:GLU:HG2	1.92	0.51
21:O:14:VAL:HG23	21:O:27:LEU:HD11	1.92	0.51
26:T:1163:ARG:HD3	26:T:1166:LYS:HE2	1.92	0.51
7:A:54:VAL:HG13	7:A:57:GLN:HB2	1.91	0.51
16:J:125:MET:HE2	16:J:132:LEU:HD23	1.92	0.51
21:O:44:ARG:HG3	21:O:164:PRO:HG2	1.92	0.51
44:v:53:ILE:HD11	44:v:94:ILE:HG12	1.93	0.51
7:A:1555:LEU:HD21	7:A:1562:MET:HE3	1.91	0.51
8:B:696:LEU:HD21	8:B:718:PHE:HE1	1.76	0.51
40:f:30:LYS:O	40:f:47:THR:HA	2.11	0.51
7:A:1530:PRO:HG2	7:A:1533:ARG:HB2	1.91	0.51
17:K:406:ILE:HG22	17:K:407:GLN:HG2	1.92	0.51
21:O:27:LEU:HD13	21:O:29:TRP:HE1	1.76	0.51
44:v:23:MET:HG3	44:v:227:GLU:HG2	1.91	0.51
7:A:1777:ILE:HG12	7:A:1860:GLN:HB2	1.92	0.51
4:4:452:THR:HG23	4:4:454:ARG:H	1.76	0.51
7:A:2315:LEU:O	7:A:2316:ASN:HB3	2.10	0.51
10:D:259:VAL:HG13	10:D:277:PHE:HB2	1.93	0.51
35:a:26:ILE:HB	35:a:48:PHE:HB2	1.92	0.51
8:B:836:VAL:HG22	8:B:897:SER:HB3	1.93	0.51
9:C:1195:ARG:HA	9:C:1291:LEU:HD12	1.91	0.51
4:4:88:MET:HE1	4:4:469:PHE:HA	1.93	0.50
7:A:1613:THR:HG23	34:Z:230:HIS:HE1	1.76	0.50
9:C:1620:LEU:HD23	9:C:1629:ARG:HG3	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:X:153:ASN:ND2	29:X:153:ASN:O	2.44	0.50
38:d:18:VAL:HG11	38:d:32:LEU:HD12	1.94	0.50
41:g:13:MET:HA	41:g:31:LEU:HD12	1.92	0.50
8:B:829:GLU:HG2	8:B:907:VAL:HG22	1.93	0.50
9:C:827:ILE:HG22	9:C:868:ILE:HB	1.91	0.50
9:C:2047:VAL:HG23	9:C:2086:GLN:HG3	1.92	0.50
10:D:113:MET:HA	10:D:113:MET:HE2	1.93	0.50
7:A:2197:ALA:HA	7:A:2200:MET:HE2	1.94	0.50
7:A:2320:LEU:HD12	26:T:577:TYR:HE2	1.76	0.50
12:F:536:GLU:HA	12:F:539:LYS:HD2	1.92	0.50
12:F:619:ALA:HB3	12:F:631:MET:HE2	1.93	0.50
26:T:1120:HIS:HB3	26:T:1132:CYS:HB2	1.93	0.50
39:e:57:VAL:HG22	39:e:78:MET:SD	2.50	0.50
7:A:1038:SER:O	7:A:1042:GLN:HG2	2.12	0.50
16:J:237:MET:HE2	16:J:241:GLU:HB2	1.94	0.50
27:U:138:ALA:HB1	44:v:228:MET:HE1	1.94	0.50
45:w:8:TYR:HB3	45:w:93:VAL:HB	1.94	0.50
8:B:683:ASN:HD21	8:B:797:ALA:HB2	1.77	0.50
9:C:2043:ARG:HH21	9:C:2084:LEU:HB3	1.76	0.50
4:4:335:LEU:HD22	4:4:339:GLU:HG2	1.94	0.50
9:C:785:HIS:CE1	9:C:794:ARG:HB2	2.46	0.50
10:D:323:LEU:HD12	10:D:324:PRO:HD2	1.93	0.50
23:Q:519:VAL:HA	23:Q:537:ALA:HA	1.93	0.50
45:w:86:GLY:HA3	45:w:105:LYS:HB2	1.94	0.50
5:5:96:A:O2'	37:c:47:ARG:HB3	2.12	0.50
7:A:963:GLN:HG3	7:A:1077:ILE:HG23	1.93	0.50
9:C:1165:ILE:O	9:C:1166:ARG:HB3	2.12	0.50
9:C:1186:LEU:HB3	9:C:1282:LEU:HD22	1.93	0.50
9:C:2017:ILE:HB	9:C:2043:ARG:HG3	1.93	0.50
9:C:2118:GLN:HB3	9:C:2120:TYR:HE1	1.77	0.50
28:V:194:ARG:HD3	28:V:382:LEU:HD13	1.93	0.50
38:d:19:THR:HB	38:d:72:ILE:HG13	1.94	0.50
7:A:1645:LEU:HB2	7:A:1714:ALA:HB3	1.94	0.49
9:C:416:PHE:HE2	9:C:890:GLU:HB3	1.77	0.49
4:4:92:VAL:HA	4:4:446:ASN:HA	1.94	0.49
9:C:1324:LYS:HE3	9:C:1396:LYS:HE3	1.94	0.49
17:K:281:ILE:HG13	17:K:282:ARG:HG3	1.93	0.49
26:T:597:VAL:HG12	26:T:609:VAL:HG21	1.94	0.49
7:A:591:MET:SD	7:A:598:LEU:HD21	2.52	0.49
9:C:813:ALA:HA	9:C:852:MET:HE1	1.94	0.49
28:V:217:ALA:O	28:V:221:ILE:HG13	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:Y:90:LYS:HB3	33:Y:99:THR:HG23	1.94	0.49
44:v:184:LEU:HB3	44:v:214:VAL:HG22	1.93	0.49
9:C:525:ILE:HA	9:C:531:ILE:HG13	1.92	0.49
9:C:568:GLU:HA	9:C:587:VAL:O	2.12	0.49
9:C:614:LEU:HG	9:C:617:ILE:HG12	1.94	0.49
9:C:1408:LEU:HB2	9:C:1431:LYS:HE3	1.95	0.49
9:C:1913:GLU:HG2	9:C:2057:PRO:HG3	1.94	0.49
13:G:396:ARG:HD2	13:G:431:ARG:HH22	1.77	0.49
9:C:537:LYS:HG2	9:C:584:GLN:HA	1.95	0.49
9:C:619:LEU:HD12	9:C:847:LEU:HD13	1.95	0.49
9:C:690:VAL:HG21	9:C:707:ILE:HD12	1.94	0.49
9:C:1067:ILE:HD11	9:C:1118:ILE:HG22	1.94	0.49
19:M:92:GLU:HA	19:M:95:LEU:HD23	1.93	0.49
29:X:218:ASP:HB2	29:X:220:LYS:HE3	1.95	0.49
4:4:450:MET:HE1	4:4:452:THR:HB	1.95	0.49
11:E:198:ILE:HD12	15:I:54:SER:HB3	1.93	0.49
38:d:16:HIS:HB2	38:d:74:PRO:HG2	1.94	0.49
7:A:429:ASN:HA	7:A:432:ARG:HB2	1.95	0.49
7:A:1248:LEU:HD11	7:A:1294:LYS:HB3	1.94	0.49
8:B:426:GLU:HG3	8:B:428:THR:HG23	1.94	0.49
13:G:383:ALA:O	13:G:387:GLU:HG2	2.12	0.49
19:M:34:GLU:HG2	19:M:73:LEU:HD22	1.94	0.49
21:O:138:MET:HG3	21:O:141:ARG:HH21	1.78	0.49
8:B:500:THR:HG22	8:B:545:PRO:HA	1.94	0.49
8:B:734:ALA:HB2	8:B:767:VAL:HG22	1.95	0.49
40:f:22:LYS:HG3	40:f:28:GLU:HB3	1.95	0.49
5:5:89:U:H1'	41:g:65:ASN:HB2	1.94	0.49
8:B:724:TRP:HZ3	8:B:732:ILE:HD11	1.76	0.49
7:A:942:PRO:HG3	7:A:1091:TYR:CZ	2.48	0.49
7:A:1609:VAL:HG22	7:A:1631:LEU:HD22	1.94	0.49
8:B:765:SER:HA	8:B:768:GLN:HE21	1.77	0.49
21:O:98:LEU:HD13	21:O:129:PHE:HD2	1.78	0.49
27:U:129:GLU:O	27:U:133:GLU:HG3	2.13	0.49
45:w:10:ARG:O	45:w:90:LEU:HA	2.12	0.49
5:5:96:A:C2	40:f:25:TRP:HB3	2.48	0.48
8:B:603:MET:HB2	8:B:651:ILE:HD11	1.94	0.48
9:C:562:TYR:HB2	9:C:564:ILE:HG22	1.95	0.48
9:C:1379:ILE:HB	9:C:1453:VAL:HG13	1.95	0.48
26:T:971:ILE:HA	26:T:974:ILE:HG22	1.94	0.48
46:x:110:THR:HG23	46:x:112:TYR:H	1.77	0.48
4:4:245:GLY:HA2	4:4:283:PRO:HD3	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:1405:LEU:HD12	7:A:1405:LEU:H	1.78	0.48
7:A:2280:ASN:HB3	7:A:2309:HIS:HB3	1.94	0.48
8:B:732:ILE:HD12	8:B:744:ILE:HD11	1.93	0.48
26:T:550:ILE:HG23	26:T:680:LEU:HB3	1.94	0.48
26:T:579:MET:HB2	26:T:646:TYR:HA	1.95	0.48
4:4:139:ILE:HB	4:4:148:PHE:HE1	1.78	0.48
7:A:2188:LEU:HD11	7:A:2228:TYR:CD2	2.48	0.48
8:B:590:ILE:HG12	8:B:637:LEU:HD13	1.95	0.48
26:T:675:ARG:HD3	26:T:678:LEU:HD23	1.94	0.48
37:c:24:PHE:CE1	37:c:29:LEU:HD23	2.48	0.48
41:g:30:ILE:HG23	41:g:32:ARG:HD3	1.94	0.48
3:2:28:U:H2'	3:2:29:A:H8	1.78	0.48
9:C:1156:LEU:HD23	9:C:1160:GLU:HB3	1.96	0.48
13:G:427:LYS:HG3	13:G:429:PHE:HE2	1.78	0.48
26:T:1095:THR:HB	33:Y:140:ARG:CZ	2.42	0.48
7:A:1003:HIS:CG	33:Y:165:ALA:HB2	2.48	0.48
26:T:406:HIS:HB2	26:T:1152:LYS:HB2	1.96	0.48
8:B:221:ILE:HD11	8:B:494:GLY:HA2	1.94	0.48
9:C:750:LEU:HD21	9:C:780:TYR:HA	1.95	0.48
26:T:1086:GLY:H	26:T:1089:GLU:HB3	1.78	0.48
7:A:2073:TRP:CE2	7:A:2074:ARG:HD3	2.48	0.48
8:B:733:TRP:HZ2	8:B:791:ILE:HD12	1.79	0.48
11:E:5:MET:HE2	11:E:40:ARG:HH11	1.79	0.48
17:K:116:ARG:HG3	17:K:118:PRO:HD2	1.96	0.48
21:O:99:ALA:HB1	21:O:126:HIS:HB3	1.95	0.48
6:6:12:A:H2'	6:6:13:A:H8	1.79	0.48
8:B:347:ILE:HD11	8:B:356:PHE:HB3	1.95	0.48
9:C:1356:LYS:HB3	9:C:1490:LEU:HG	1.95	0.48
9:C:1843:ARG:HH22	9:C:1879:LEU:HG	1.79	0.48
16:J:3:LEU:O	16:J:7:LEU:HB2	2.13	0.48
19:M:14:LEU:H	19:M:14:LEU:HD23	1.78	0.48
44:v:284:CYS:HB2	44:v:290:VAL:HG12	1.95	0.48
7:A:1963:GLU:HB2	7:A:1966:HIS:HB2	1.96	0.48
7:A:2125:ALA:HA	7:A:2178:ILE:O	2.14	0.48
8:B:86:THR:HG22	17:K:239:LYS:HA	1.96	0.48
26:T:822:ASP:HB3	26:T:867:ARG:HA	1.95	0.48
44:v:247:THR:HG21	44:v:398:THR:HG22	1.94	0.48
8:B:133:THR:HG22	8:B:203:MET:HB3	1.96	0.48
26:T:523:LYS:HD2	26:T:523:LYS:HA	1.55	0.48
7:A:2159:LEU:HD21	7:A:2199:ILE:HD11	1.96	0.47
8:B:480:LYS:HB2	8:B:493:PHE:HB3	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:673:LYS:HD2	8:B:792:LEU:HD12	1.96	0.47
9:C:1953:MET:HG2	9:C:2114:MET:HE3	1.96	0.47
9:C:2047:VAL:HG21	9:C:2085:GLN:HA	1.96	0.47
35:a:16:ARG:HH21	35:a:29:GLY:HA2	1.79	0.47
40:f:44:LEU:HB2	40:f:62:VAL:HG22	1.95	0.47
7:A:386:PRO:HD2	7:A:389:LYS:HD3	1.96	0.47
7:A:2102:TYR:HB3	7:A:2140:LYS:HG3	1.95	0.47
9:C:115:VAL:HG22	9:C:1035:LEU:HD11	1.96	0.47
9:C:960:ALA:O	9:C:964:LEU:HB2	2.14	0.47
9:C:1559:VAL:HG22	9:C:1660:LEU:HB3	1.95	0.47
29:X:41:LEU:HD23	29:X:48:TRP:HB2	1.97	0.47
44:v:133:MET:HE2	44:v:133:MET:HB3	1.72	0.47
7:A:1337:GLN:HG3	7:A:1354:ARG:HB2	1.96	0.47
12:F:474:GLU:HB3	12:F:478:ASN:HD22	1.79	0.47
26:T:1114:PRO:HG2	26:T:1135:ALA:HB1	1.96	0.47
45:w:110:ILE:O	45:w:114:GLN:HG2	2.15	0.47
1:O:-22:C:H2'	1:O:-21:G:C8	2.50	0.47
2:1:12:A:H2'	2:1:13:A:H8	1.79	0.47
7:A:1734:MET:HE3	7:A:1734:MET:HB3	1.76	0.47
7:A:2232:PRO:HA	7:A:2235:TYR:HB3	1.97	0.47
9:C:1477:ILE:O	9:C:1481:ILE:HG12	2.14	0.47
9:C:1538:ARG:O	9:C:1542:MET:HB3	2.15	0.47
9:C:1589:PHE:HB3	9:C:1642:GLN:HB3	1.96	0.47
35:a:48:PHE:HE1	35:a:64:LYS:HG3	1.78	0.47
47:z:75:ARG:O	47:z:79:LEU:HG	2.15	0.47
7:A:76:MET:HE3	7:A:76:MET:HB3	1.81	0.47
7:A:1899:VAL:HB	7:A:1902:PHE:HD1	1.79	0.47
7:A:1988:LEU:HB3	7:A:1999:VAL:HG13	1.95	0.47
11:E:24:MET:HG2	16:J:262:ILE:HD12	1.95	0.47
11:E:198:ILE:HD13	15:I:50:ILE:HG23	1.96	0.47
17:K:353:THR:HG22	17:K:369:THR:HG22	1.95	0.47
23:Q:1169:ALA:HB2	23:Q:1344:ASN:HA	1.97	0.47
28:V:175:ILE:HD12	28:V:175:ILE:H	1.79	0.47
28:V:648:LYS:HD2	28:V:648:LYS:HA	1.70	0.47
34:Z:432:SER:HB3	34:Z:437:LEU:HB2	1.96	0.47
40:f:20:MET:SD	40:f:30:LYS:HD3	2.53	0.47
4:4:315:MET:HG2	4:4:316:ARG:HG2	1.96	0.47
12:F:456:LEU:HD22	12:F:493:LEU:HD22	1.95	0.47
44:v:394:GLN:HG3	45:w:24:LEU:HB2	1.96	0.47
7:A:1209:HIS:HB3	28:V:509:LEU:HD21	1.97	0.47
7:A:1776:ILE:HB	7:A:1858:PRO:HA	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:236:MET:O	8:B:240:GLU:HG2	2.15	0.47
10:D:246:GLU:HG2	10:D:248:SER:H	1.80	0.47
11:E:206:ARG:HG2	13:G:229:LYS:HD2	1.97	0.47
17:K:213:GLU:HG2	17:K:214:PRO:HD2	1.97	0.47
18:L:132:ARG:HG3	19:M:162:ILE:HG12	1.97	0.47
26:T:449:GLN:HA	26:T:452:ARG:HD2	1.95	0.47
34:Z:176:ILE:HB	34:Z:497:VAL:HB	1.95	0.47
34:Z:282:HIS:CE1	34:Z:309:ARG:HG3	2.50	0.47
7:A:952:VAL:HG22	7:A:1189:MET:HB3	1.97	0.47
7:A:1249:MET:HE3	7:A:1249:MET:HB2	1.76	0.47
7:A:1676:ILE:HD13	7:A:1706:ASP:HB2	1.97	0.47
8:B:374:LEU:HD23	8:B:374:LEU:HA	1.81	0.47
8:B:876:PRO:HG2	8:B:879:ASP:HB2	1.97	0.47
9:C:1307:LEU:HD13	9:C:1333:THR:HB	1.97	0.47
17:K:287:HIS:CE1	17:K:313:ARG:HD2	2.49	0.47
25:S:145:THR:HG23	25:S:147:THR:H	1.79	0.47
27:U:59:ASP:O	27:U:63:LYS:HG2	2.15	0.47
29:X:75:ASN:HD21	29:X:77:LEU:HB2	1.80	0.47
36:b:3:LEU:HD21	37:c:66:VAL:HG23	1.97	0.47
7:A:1596:VAL:HG11	7:A:1729:ALA:HB2	1.97	0.47
18:L:133:LYS:HE3	18:L:137:MET:HE3	1.97	0.47
37:c:18:LYS:HD3	37:c:18:LYS:HA	1.73	0.47
45:w:112:VAL:HG13	45:w:121:LEU:HB3	1.96	0.47
3:2:14:A:C6	33:Y:111:GLU:HG2	2.50	0.47
7:A:527:VAL:HG12	15:I:16:ARG:HD2	1.97	0.47
9:C:1259:PHE:HB2	9:C:1261:PRO:HD2	1.97	0.47
9:C:1366:ARG:HD3	9:C:1486:ARG:HH12	1.80	0.47
12:F:456:LEU:HD12	12:F:456:LEU:HA	1.68	0.47
26:T:659:LEU:HD22	26:T:889:THR:HG21	1.96	0.47
34:Z:341:SER:HA	34:Z:386:PHE:CZ	2.50	0.47
44:v:222:PRO:HB3	45:w:43:LYS:HD3	1.97	0.47
44:v:313:GLN:HE21	44:v:317:GLU:HG2	1.79	0.47
7:A:1892:PRO:HG3	7:A:1941:ARG:HH21	1.80	0.46
7:A:2083:LEU:O	7:A:2087:THR:HG23	2.15	0.46
9:C:1030:ARG:HH22	9:C:1076:ALA:HB1	1.80	0.46
26:T:958:MET:HE1	26:T:974:ILE:HG23	1.97	0.46
33:Y:134:MET:O	33:Y:138:GLU:HG2	2.14	0.46
44:v:321:LYS:HE3	44:v:321:LYS:HB3	1.76	0.46
9:C:1113:ASN:O	9:C:1117:MET:HB2	2.15	0.46
9:C:1539:LEU:HA	9:C:1542:MET:HE2	1.96	0.46
28:V:556:TYR:CD2	28:V:593:TYR:HB3	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:1393:ARG:HA	7:A:1403:LEU:HD11	1.98	0.46
8:B:135:CYS:HB2	8:B:242:LEU:HD13	1.97	0.46
9:C:619:LEU:HD21	9:C:624:ARG:HB2	1.97	0.46
9:C:784:ILE:HG23	9:C:810:VAL:HG13	1.97	0.46
9:C:1819:ALA:HA	9:C:1824:ILE:HG22	1.95	0.46
26:T:934:ASP:HB3	26:T:940:THR:HG22	1.97	0.46
29:X:147:MET:HE1	29:X:180:ILE:H	1.80	0.46
35:a:69:LEU:HD23	38:d:73:LEU:HB2	1.97	0.46
7:A:1130:ASN:HB3	7:A:1132:LYS:HE3	1.98	0.46
9:C:464:VAL:HG12	9:C:472:GLN:HG3	1.97	0.46
9:C:997:THR:HG21	9:C:1091:LEU:HD22	1.98	0.46
11:E:196:ILE:HD12	11:E:197:GLU:N	2.30	0.46
28:V:396:GLU:HA	28:V:399:LYS:HD2	1.98	0.46
34:Z:386:PHE:HA	34:Z:393:LEU:HA	1.97	0.46
41:g:64:GLY:HA2	41:g:67:ILE:HD12	1.97	0.46
7:A:2326:TYR:HB3	9:C:728:ARG:HH12	1.80	0.46
8:B:742:PRO:HG2	8:B:785:ARG:HG2	1.98	0.46
9:C:1252:ILE:HD12	9:C:1252:ILE:HA	1.83	0.46
24:R:142:ILE:HD12	28:V:629:ASN:HB3	1.97	0.46
29:X:173:GLY:H	29:X:176:GLU:HB2	1.78	0.46
46:x:77:VAL:HB	46:x:117:THR:HG22	1.98	0.46
7:A:942:PRO:HD2	7:A:1438:VAL:HG12	1.98	0.46
8:B:758:LEU:HD12	8:B:803:ARG:HH22	1.81	0.46
9:C:2023:VAL:HB	9:C:2026:LYS:HB2	1.98	0.46
12:F:704:TRP:CE3	12:F:723:MET:HE1	2.50	0.46
28:V:169:LEU:HD13	28:V:185:LEU:HD22	1.98	0.46
34:Z:256:ILE:HG22	34:Z:262:GLU:HA	1.97	0.46
37:c:92:LYS:HE3	37:c:93:ASP:H	1.80	0.46
44:v:34:VAL:HG22	44:v:71:GLN:HG3	1.97	0.46
44:v:37:THR:HG21	44:v:43:MET:HG3	1.98	0.46
44:v:79:ILE:HG13	44:v:238:ARG:HA	1.96	0.46
5:5:110:C:H2'	5:5:111:A:H8	1.80	0.46
8:B:750:LEU:HD21	27:U:64:ARG:HA	1.97	0.46
9:C:520:GLU:HG2	9:C:538:ILE:HD11	1.98	0.46
10:D:92:LEU:HB2	10:D:103:ALA:HB3	1.97	0.46
10:D:265:ARG:HG3	10:D:266:PRO:HD2	1.97	0.46
21:O:27:LEU:HB2	21:O:29:TRP:CD1	2.50	0.46
42:r:5:CYS:HA	42:r:25:TYR:HA	1.97	0.46
7:A:550:VAL:O	7:A:554:THR:HG23	2.16	0.46
9:C:509:LYS:HD3	9:C:651:LEU:HB3	1.97	0.46
9:C:964:LEU:HG	9:C:969:LEU:HB3	1.96	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:a:38:MET:HE3	36:b:37:ASN:HD21	1.79	0.46
41:g:68:ILE:HG22	41:g:69:MET:HB2	1.96	0.46
7:A:488:ASP:O	7:A:492:VAL:HG23	2.16	0.46
12:F:722:GLU:HA	12:F:725:ARG:HG2	1.98	0.46
28:V:214:VAL:HG23	28:V:357:LEU:HD11	1.98	0.46
9:C:2070:ASP:HB3	9:C:2073:SER:HB2	1.97	0.46
16:J:151:LEU:HD13	17:K:302:VAL:HG11	1.98	0.46
21:O:11:PRO:HG2	21:O:44:ARG:HH22	1.80	0.46
26:T:856:ARG:O	26:T:859:ARG:HG2	2.15	0.46
28:V:602:ARG:HE	28:V:602:ARG:HB2	1.60	0.46
39:e:78:MET:HG2	40:f:10:PHE:CE2	2.51	0.46
5:5:96:A:H2'	5:5:97:G:O4'	2.16	0.45
7:A:816:TRP:O	7:A:820:ARG:HG2	2.16	0.45
7:A:881:ILE:HG23	7:A:918:THR:HG23	1.98	0.45
5:5:5:U:H2'	5:5:6:C:C6	2.51	0.45
9:C:406:ARG:HE	9:C:958:HIS:CE1	2.34	0.45
9:C:731:THR:HB	9:C:810:VAL:HG22	1.98	0.45
13:G:440:LEU:HD13	13:G:440:LEU:C	2.41	0.45
26:T:569:LEU:HD12	26:T:650:ILE:HD11	1.97	0.45
26:T:638:LEU:HD11	26:T:947:VAL:HG12	1.97	0.45
33:Y:181:GLU:HA	33:Y:184:ARG:HE	1.82	0.45
39:e:20:LEU:HG	39:e:24:TYR:CZ	2.51	0.45
45:w:9:LEU:HB3	45:w:28:PHE:HB3	1.98	0.45
46:x:97:GLY:HA3	46:x:126:GLU:HG3	1.97	0.45
3:2:28:U:H2'	3:2:29:A:C8	2.52	0.45
5:5:6:C:H2'	5:5:7:U:O4'	2.17	0.45
9:C:846:ALA:HA	9:C:882:LEU:HD21	1.98	0.45
9:C:1943:MET:HG2	9:C:2109:MET:SD	2.56	0.45
12:F:683:ARG:HH21	12:F:687:ILE:HG13	1.81	0.45
26:T:533:PRO:HD2	26:T:559:SER:HA	1.98	0.45
34:Z:276:MET:HB2	34:Z:324:LYS:HD3	1.98	0.45
36:i:14:THR:HA	36:i:28:THR:HA	1.98	0.45
44:v:339:ARG:HH21	44:v:363:HIS:CE1	2.35	0.45
4:4:84:GLU:HA	4:4:456:PRO:HB3	1.98	0.45
7:A:185:VAL:HG12	34:Z:330:GLY:HA3	1.99	0.45
7:A:465:LYS:HA	7:A:465:LYS:HD3	1.73	0.45
7:A:1737:ASN:HB3	7:A:1740:LEU:HB2	1.98	0.45
12:F:542:GLU:HG3	13:G:460:LYS:HE2	1.99	0.45
18:L:133:LYS:HB3	18:L:133:LYS:HE2	1.71	0.45
26:T:1033:ILE:HG22	26:T:1035:ALA:H	1.82	0.45
29:X:211:LYS:HG3	29:X:221:LEU:HD11	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
33:Y:172:MET:HE2	33:Y:172:MET:HB2	1.81	0.45
34:Z:300:MET:HB2	34:Z:310:THR:HG22	1.99	0.45
2:1:12:A:H2'	2:1:13:A:C8	2.51	0.45
7:A:1953:ILE:HD13	7:A:1982:GLN:HB3	1.99	0.45
7:A:2163:LEU:HD13	7:A:2164:PRO:HD2	1.97	0.45
9:C:1635:LEU:HG	9:C:1640:ALA:HB3	1.98	0.45
12:F:671:PHE:O	12:F:674:MET:HG3	2.17	0.45
28:V:230:GLY:O	28:V:233:ILE:HG13	2.17	0.45
44:v:358:ARG:HG2	44:v:392:ILE:HG12	1.97	0.45
9:C:464:VAL:HG13	9:C:475:PHE:HD2	1.80	0.45
9:C:786:HIS:CD2	9:C:789:MET:HE3	2.52	0.45
9:C:1542:MET:HE3	9:C:1664:MET:HE3	1.99	0.45
10:D:261:VAL:HB	10:D:275:LYS:HB2	1.98	0.45
24:R:144:LYS:HA	24:R:144:LYS:HD3	1.81	0.45
25:S:124:GLY:HA3	25:S:149:ILE:HG13	1.97	0.45
35:a:26:ILE:O	35:a:47:GLU:HA	2.16	0.45
9:C:1415:ASP:HB3	9:C:1435:LEU:HD11	1.98	0.45
15:I:70:ILE:HG23	15:I:129:LEU:HD11	1.98	0.45
26:T:608:GLU:HG3	26:T:609:VAL:HG23	1.99	0.45
28:V:196:LEU:HD23	28:V:196:LEU:H	1.81	0.45
34:Z:478:LEU:O	34:Z:486:ILE:HA	2.16	0.45
44:v:381:VAL:HG21	44:v:389:LEU:HD22	1.98	0.45
7:A:1816:GLN:HE22	7:A:1916:LEU:HB3	1.82	0.45
7:A:1983:LEU:HD12	7:A:1983:LEU:HA	1.87	0.45
9:C:1294:LYS:HA	9:C:1294:LYS:HD3	1.87	0.45
12:F:429:VAL:HG22	12:F:476:VAL:HG12	1.99	0.45
17:K:214:PRO:HG3	17:K:256:THR:HG22	1.98	0.45
21:O:55:ARG:HB2	21:O:63:GLN:HB3	1.97	0.45
26:T:532:LEU:HD13	26:T:560:GLY:HA3	1.99	0.45
40:f:20:MET:HE2	40:f:28:GLU:OE1	2.16	0.45
7:A:919:ASP:HB3	7:A:1035:GLN:HB2	1.99	0.45
7:A:1565:LYS:HG2	33:Y:7:LEU:HD22	1.98	0.45
8:B:314:TYR:HA	8:B:417:ARG:HG3	1.98	0.45
8:B:947:VAL:HG21	8:B:951:LYS:H	1.80	0.45
9:C:617:ILE:HB	9:C:652:SER:HB3	1.99	0.45
11:E:40:ARG:HD2	11:E:40:ARG:HA	1.78	0.45
26:T:943:GLY:O	26:T:947:VAL:HG23	2.16	0.45
37:c:56:VAL:HG13	37:c:65:MET:HE2	1.99	0.45
7:A:1924:LEU:HD22	7:A:1924:LEU:HA	1.87	0.45
9:C:1177:TYR:HA	9:C:1180:LEU:HD12	1.99	0.45
18:L:8:LEU:HD13	18:L:11:LEU:HD21	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:Q:135:ASP:HA	23:Q:139:SER:HA	1.98	0.45
7:A:1820:LYS:HD3	7:A:1914:MET:HE2	1.99	0.44
13:G:391:TYR:HB3	13:G:394:HIS:ND1	2.32	0.44
26:T:431:ILE:HG13	26:T:433:VAL:H	1.82	0.44
26:T:550:ILE:HD11	26:T:672:VAL:HG11	1.99	0.44
26:T:579:MET:HE3	26:T:580:ILE:N	2.31	0.44
26:T:753:ILE:HG12	26:T:803:VAL:HG12	1.99	0.44
33:Y:27:LYS:HD2	33:Y:27:LYS:O	2.17	0.44
46:x:77:VAL:HG22	46:x:146:VAL:HG12	1.98	0.44
3:2:25:A:H2'	3:2:26:A:C8	2.52	0.44
4:4:131:SER:HA	4:4:167:MET:HE1	1.99	0.44
9:C:426:LYS:H	9:C:426:LYS:HG2	1.54	0.44
44:v:167:VAL:O	44:v:171:ILE:HG12	2.18	0.44
8:B:758:LEU:HA	8:B:803:ARG:HH22	1.82	0.44
9:C:720:GLN:HB3	9:C:823:ALA:HB1	2.00	0.44
11:E:50:TRP:HA	11:E:54:LEU:HB2	1.98	0.44
26:T:974:ILE:HG12	26:T:1008:HIS:HB3	2.00	0.44
28:V:591:CYS:HB2	28:V:636:LEU:HD21	1.99	0.44
39:e:20:LEU:HD23	41:g:61:VAL:HG23	2.00	0.44
46:x:64:PRO:HB2	46:x:152:ARG:HD2	1.99	0.44
2:1:213:G:H5'	7:A:1405:LEU:HD21	2.00	0.44
9:C:1587:GLN:HB3	9:C:1590:LEU:HB3	1.99	0.44
12:F:504:LYS:HE3	12:F:504:LYS:HB3	1.74	0.44
21:O:61:MET:HG3	21:O:113:PHE:CE1	2.52	0.44
24:R:65:LYS:HE3	24:R:65:LYS:HB2	1.81	0.44
25:S:143:LYS:HB3	25:S:143:LYS:HE3	1.72	0.44
36:b:40:LEU:O	36:b:57:THR:HA	2.17	0.44
9:C:1404:LYS:HB3	9:C:1422:GLY:HA2	1.99	0.44
26:T:383:LEU:HD11	26:T:390:ARG:HD3	1.99	0.44
26:T:884:PRO:HB2	26:T:886:ILE:HG22	2.00	0.44
28:V:237:LEU:HD11	28:V:259:PHE:CD2	2.52	0.44
37:c:44:ILE:HG12	37:c:109:VAL:HG22	1.98	0.44
39:e:17:PRO:O	39:e:21:ILE:HD12	2.17	0.44
44:v:283:PHE:HE2	44:v:349:ILE:HD12	1.82	0.44
44:v:283:PHE:CD1	44:v:364:ARG:HG2	2.53	0.44
46:x:81:HIS:H	46:x:140:MET:HE1	1.82	0.44
7:A:750:TRP:CZ2	7:A:778:ARG:HG2	2.53	0.44
9:C:540:TYR:HB3	9:C:587:VAL:HG22	1.99	0.44
9:C:541:ILE:HD12	9:C:590:PRO:HG3	2.00	0.44
9:C:1051:SER:HB2	9:C:1057:ALA:HB2	1.98	0.44
12:F:708:LYS:HE3	12:F:708:LYS:HB2	1.71	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:K:187:LYS:HD3	17:K:187:LYS:HA	1.69	0.44
18:L:8:LEU:HD12	18:L:124:GLU:HG2	1.99	0.44
35:a:16:ARG:HG2	35:a:83:GLU:HB2	1.99	0.44
39:e:89:SER:H	41:g:57:ILE:HD11	1.82	0.44
44:v:311:MET:HE2	44:v:311:MET:HB3	1.83	0.44
6:6:11:A:H2'	6:6:12:A:H8	1.82	0.44
6:6:52:A:H2'	6:6:53:G:H8	1.82	0.44
9:C:1560:ILE:HG23	9:C:1644:VAL:HG23	1.99	0.44
12:F:616:TYR:O	12:F:620:THR:HG23	2.17	0.44
24:R:70:LEU:HD12	24:R:72:TRP:HE1	1.83	0.44
26:T:1192:LYS:HE3	26:T:1192:LYS:HB3	1.76	0.44
38:d:67:LYS:HB3	41:g:68:ILE:HD13	2.00	0.44
5:5:91:U:H1'	35:a:75:GLU:HG3	1.99	0.44
6:6:12:A:H2'	6:6:13:A:C8	2.53	0.44
18:L:26:LYS:HA	18:L:26:LYS:HD3	1.83	0.44
28:V:229:ILE:HD12	28:V:230:GLY:N	2.33	0.44
8:B:159:LYS:HE3	8:B:164:ASP:HA	2.00	0.44
9:C:747:THR:HB	9:C:750:LEU:HB2	2.00	0.44
9:C:1364:ILE:O	9:C:1367:MET:HG2	2.18	0.44
9:C:1378:TYR:HA	9:C:1452:VAL:O	2.18	0.44
9:C:1974:CYS:HA	9:C:1977:LYS:HG2	1.99	0.44
12:F:717:GLU:O	12:F:721:LYS:HG2	2.18	0.44
26:T:753:ILE:HG23	26:T:803:VAL:HB	1.99	0.44
37:c:67:LEU:HB2	37:c:99:MET:HG2	2.00	0.44
44:v:362:ILE:HD12	44:v:362:ILE:HA	1.90	0.44
3:2:26:A:H2'	3:2:27:A:H8	1.83	0.43
4:4:125:PHE:HZ	4:4:128:HIS:HB2	1.83	0.43
4:4:184:TYR:HB3	4:4:192:SER:H	1.82	0.43
4:4:356:VAL:HG23	4:4:359:ILE:HD12	1.99	0.43
19:M:54:ARG:HD3	19:M:90:ASN:HB3	2.00	0.43
28:V:254:LEU:HD12	28:V:292:VAL:HG22	2.00	0.43
36:b:44:LYS:HA	36:b:44:LYS:HD3	1.86	0.43
4:4:95:HIS:HB2	4:4:107:ALA:HB3	2.00	0.43
4:4:197:GLU:HG2	4:4:200:THR:H	1.83	0.43
7:A:95:MET:HB3	7:A:96:PRO:HD3	1.99	0.43
9:C:1143:ILE:HD12	9:C:1143:ILE:HA	1.86	0.43
9:C:1667:GLN:HB3	9:C:1676:TYR:HB3	2.00	0.43
9:C:2009:ARG:HH12	9:C:2052:ILE:HG13	1.82	0.43
35:a:17:MET:O	35:a:28:ILE:HA	2.18	0.43
44:v:100:LEU:HD23	44:v:100:LEU:HA	1.85	0.43
7:A:1789:THR:HG23	7:A:1803:ILE:HD13	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:C:753:ARG:H	9:C:753:ARG:HG3	1.63	0.43
9:C:1973:ARG:HB2	9:C:1997:LEU:HD11	2.01	0.43
12:F:583:ALA:HB1	12:F:595:LEU:HD11	2.00	0.43
13:G:353:GLU:O	13:G:357:LYS:O	2.37	0.43
28:V:155:GLN:HG3	28:V:391:PHE:CE2	2.53	0.43
37:c:104:ASP:HA	40:f:65:ARG:HH21	1.83	0.43
4:4:479:MET:HE2	4:4:479:MET:HB3	1.83	0.43
7:A:1457:HIS:HB3	7:A:1460:HIS:HB2	2.01	0.43
7:A:1790:ILE:HG12	7:A:1800:THR:HG22	1.98	0.43
7:A:2212:ILE:HG22	7:A:2229:LYS:HB3	2.00	0.43
8:B:501:ILE:HG22	8:B:530:LEU:HD11	2.01	0.43
9:C:826:VAL:HG12	9:C:856:ALA:HB2	1.99	0.43
9:C:1397:PHE:HB3	9:C:1403:LYS:HB2	2.00	0.43
12:F:489:MET:HE2	12:F:489:MET:HB2	1.90	0.43
13:G:377:LYS:HA	13:G:380:ILE:HB	2.00	0.43
13:G:435:ILE:HG13	16:J:3:LEU:HD21	2.00	0.43
24:R:29:LYS:O	24:R:33:GLU:HG2	2.17	0.43
26:T:405:VAL:HG21	26:T:1116:TYR:HE2	1.82	0.43
4:4:151:VAL:HB	4:4:177:PRO:HG2	1.99	0.43
7:A:1891:LEU:HB3	7:A:1893:PHE:HD2	1.83	0.43
9:C:1376:CYS:HB2	9:C:1450:LEU:HB2	2.00	0.43
26:T:1085:LYS:HE2	26:T:1085:LYS:HB2	1.93	0.43
34:Z:184:THR:HB	34:Z:491:GLY:HA2	2.00	0.43
44:v:109:ALA:HB3	44:v:159:VAL:HG22	2.01	0.43
45:w:13:VAL:HG13	45:w:88:GLN:HG3	2.01	0.43
8:B:775:ARG:HG3	8:B:775:ARG:HH11	1.84	0.43
9:C:566:VAL:HA	9:C:585:ILE:HB	1.99	0.43
9:C:681:ARG:HH21	9:C:854:GLY:HA2	1.84	0.43
9:C:960:ALA:HA	9:C:963:MET:SD	2.58	0.43
10:D:250:LEU:HD22	10:D:264:VAL:HG13	2.00	0.43
11:E:104:LEU:HD13	33:Y:163:ARG:HG2	1.99	0.43
16:J:202:MET:SD	18:L:65:ARG:HD3	2.59	0.43
9:C:1149:PRO:HG2	9:C:1152:ARG:HG3	2.00	0.43
10:D:166:LEU:HB3	10:D:178:LEU:HD21	1.99	0.43
13:G:388:LYS:HA	13:G:388:LYS:HD3	1.82	0.43
18:L:145:THR:HG21	19:M:47:PRO:HB3	2.00	0.43
36:b:23:THR:HG23	36:b:47:LEU:HA	2.01	0.43
37:c:29:LEU:HD11	37:c:32:LEU:HD22	2.00	0.43
38:d:5:VAL:O	38:d:9:VAL:HG23	2.19	0.43
7:A:754:ALA:HB2	7:A:778:ARG:HD3	2.00	0.43
7:A:1357:MET:HE2	7:A:1357:MET:HB3	1.86	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:B:320:LEU:HD21	8:B:344:TRP:HB2	2.00	0.43
13:G:457:ILE:HG22	13:G:461:LYS:HE3	2.00	0.43
16:J:311:LYS:HA	16:J:311:LYS:HD2	1.75	0.43
20:N:206:LYS:HA	20:N:206:LYS:HD3	1.85	0.43
21:O:140:ASN:O	21:O:144:MET:HG2	2.19	0.43
26:T:1141:LEU:O	26:T:1144:LEU:C	2.62	0.43
27:U:58:LEU:HD11	27:U:126:GLU:HG2	1.99	0.43
7:A:1447:VAL:HG11	7:A:1449:LYS:HE2	2.01	0.43
7:A:2148:VAL:H	7:A:2150:GLN:HE21	1.67	0.43
8:B:834:VAL:HG11	8:B:883:PHE:HE2	1.83	0.43
9:C:545:ARG:O	9:C:549:GLN:HG2	2.19	0.43
9:C:1158:HIS:HB2	9:C:1172:LYS:HA	2.00	0.43
9:C:1188:VAL:HG23	9:C:1202:LEU:HD12	2.01	0.43
9:C:1855:TYR:HB3	9:C:1891:THR:HG21	2.01	0.43
18:L:40:THR:HG23	18:L:43:LEU:HB2	2.01	0.43
28:V:290:VAL:HG11	28:V:332:VAL:HG13	1.99	0.43
33:Y:182:GLU:HA	33:Y:185:ARG:HE	1.83	0.43
1:O:-7:C:P	7:A:603:ARG:HH22	2.42	0.43
6:6:23:G:H2'	6:6:24:U:C6	2.54	0.43
8:B:442:LYS:HE2	8:B:442:LYS:HB2	1.84	0.43
9:C:509:LYS:HB3	9:C:651:LEU:HD22	2.00	0.43
9:C:2103:ASN:HA	9:C:2123:SER:HA	2.00	0.43
11:E:77:LEU:HD22	16:J:285:ALA:HA	2.01	0.43
11:E:187:LYS:HB2	15:I:61:GLN:HG3	2.01	0.43
12:F:456:LEU:HD11	12:F:489:MET:SD	2.59	0.43
13:G:458:PHE:HA	13:G:461:LYS:HD2	2.01	0.43
16:J:114:SER:HA	16:J:230:MET:HE1	2.01	0.43
26:T:1065:ASP:HB3	26:T:1068:ILE:HB	2.00	0.43
34:Z:350:ALA:HB2	34:Z:384:VAL:HG21	2.01	0.43
44:v:23:MET:HE2	44:v:23:MET:HA	2.01	0.43
44:v:114:PRO:HD2	44:v:118:LEU:HD23	2.01	0.43
5:5:109:G:H2'	5:5:110:C:C6	2.54	0.42
7:A:1838:LYS:H	7:A:1838:LYS:HG3	1.69	0.42
26:T:565:LEU:HD21	26:T:681:ILE:HG21	2.01	0.42
37:c:10:GLU:HG3	37:c:12:THR:H	1.84	0.42
44:v:245:GLU:HB3	45:w:144:LYS:HG3	2.00	0.42
4:4:220:LYS:HB3	4:4:220:LYS:HE3	1.68	0.42
7:A:768:ASP:HB3	7:A:771:VAL:HG12	2.00	0.42
9:C:1590:LEU:HD11	9:C:1597:LEU:HD11	2.01	0.42
11:E:17:GLU:HG3	13:G:189:ILE:O	2.19	0.42
12:F:418:LEU:O	12:F:422:THR:HG23	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:T:959:LEU:HD23	26:T:971:ILE:HG22	2.01	0.42
34:Z:292:HIS:HB2	34:Z:298:GLU:HG2	2.01	0.42
39:e:21:ILE:HA	39:e:24:TYR:CD1	2.54	0.42
2:1:208:A:OP2	2:1:208:A:N3	2.52	0.42
11:E:185:LEU:HG	11:E:189:ARG:NE	2.34	0.42
21:O:42:LEU:HD23	21:O:48:TYR:CZ	2.54	0.42
26:T:1099:CYS:HB3	26:T:1130:MET:SD	2.59	0.42
7:A:2228:TYR:CE1	7:A:2258:ARG:HG2	2.55	0.42
9:C:482:ASN:O	9:C:486:SER:HB3	2.20	0.42
9:C:1102:ARG:HA	9:C:1102:ARG:HD2	1.84	0.42
9:C:1747:ASN:HB3	9:C:1750:ASP:H	1.84	0.42
15:I:53:ILE:HD13	15:I:53:ILE:HA	1.91	0.42
17:K:436:MET:HB3	17:K:450:VAL:HG13	2.00	0.42
26:T:817:ILE:HD12	26:T:817:ILE:O	2.19	0.42
26:T:1145:GLY:H	26:T:1146:PRO:HD3	1.84	0.42
29:X:148:ALA:HB3	29:X:156:PHE:HE2	1.84	0.42
44:v:260:ARG:HE	44:v:262:GLU:HB3	1.84	0.42
3:2:26:A:H2'	3:2:27:A:C8	2.55	0.42
7:A:468:LYS:HE3	7:A:468:LYS:HB2	1.90	0.42
7:A:994:ASN:HA	7:A:1010:THR:HG21	2.01	0.42
7:A:2005:SER:O	7:A:2008:ARG:HG3	2.18	0.42
8:B:801:LEU:HD23	8:B:801:LEU:H	1.84	0.42
9:C:541:ILE:HA	9:C:588:CYS:O	2.19	0.42
9:C:1617:VAL:HG22	9:C:1643:VAL:HB	2.01	0.42
26:T:974:ILE:HD12	26:T:974:ILE:HA	1.88	0.42
28:V:397:LYS:HD2	28:V:397:LYS:HA	1.68	0.42
36:b:20:LYS:HE2	36:b:63:ASN:O	2.20	0.42
38:d:28:TYR:HD2	38:d:46:ILE:HG21	1.84	0.42
40:f:30:LYS:HB3	40:f:48:GLU:HG2	2.00	0.42
2:1:208:A:N6	7:A:1452:PRO:HD2	2.34	0.42
7:A:790:ARG:HG3	8:B:60:HIS:CD2	2.54	0.42
16:J:225:PRO:HA	16:J:226:PRO:HD3	1.88	0.42
17:K:282:ARG:HB3	17:K:320:LYS:HD3	2.01	0.42
28:V:354:LEU:HD12	28:V:354:LEU:HA	1.89	0.42
36:b:43:VAL:HG23	36:b:55:LEU:HB2	2.01	0.42
2:1:207:A:OP1	7:A:1262:LYS:HD3	2.18	0.42
4:4:168:ILE:HD13	7:A:2082:ASN:HB3	2.02	0.42
5:5:63:A:H2'	5:5:64:G:H8	1.83	0.42
7:A:1217:GLN:HB2	7:A:1224:ARG:HH11	1.83	0.42
9:C:969:LEU:HD13	9:C:998:VAL:HG11	2.02	0.42
9:C:993:ILE:HD12	9:C:1091:LEU:HD23	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:D:172:ASP:OD1	10:D:195:GLN:HG2	2.20	0.42
24:R:73:MET:HE2	24:R:73:MET:HB3	1.81	0.42
28:V:235:LYS:HD2	28:V:376:TYR:HB3	2.00	0.42
44:v:116:ARG:HA	44:v:141:ILE:HG21	2.01	0.42
7:A:1892:PRO:HG3	7:A:1941:ARG:HE	1.85	0.42
8:B:205:THR:HB	8:B:215:VAL:HG22	2.01	0.42
8:B:328:ALA:HA	8:B:334:ILE:HD12	2.02	0.42
9:C:827:ILE:HG22	9:C:868:ILE:HD13	2.02	0.42
9:C:1078:MET:HE3	9:C:1078:MET:HB3	1.99	0.42
9:C:1405:VAL:HG22	9:C:1424:ILE:HD11	2.02	0.42
18:L:8:LEU:HD23	18:L:8:LEU:HA	1.85	0.42
21:O:60:PHE:HE1	21:O:121:TRP:HH2	1.68	0.42
21:O:99:ALA:HB3	21:O:113:PHE:HB3	2.02	0.42
26:T:1177:ALA:O	26:T:1180:GLU:HG3	2.19	0.42
36:b:1:MET:HE3	36:b:1:MET:HB3	1.93	0.42
7:A:109:PRO:HD3	7:A:630:TRP:CZ2	2.54	0.42
7:A:845:ARG:HH22	7:A:1436:TRP:HB2	1.85	0.42
33:Y:71:LEU:HA	33:Y:72:PRO:HD3	1.94	0.42
45:w:62:LEU:HD12	45:w:62:LEU:HA	1.84	0.42
4:4:87:TYR:HB2	4:4:448:PHE:CE1	2.55	0.42
6:6:22:G:H2'	6:6:23:G:H8	1.85	0.42
8:B:92:PRO:HG2	8:B:95:LYS:HD3	2.02	0.42
8:B:140:HIS:CD2	8:B:230:ASP:HB2	2.55	0.42
13:G:436:TYR:OH	13:G:454:ASN:HB3	2.20	0.42
17:K:294:LEU:HB2	17:K:305:THR:HG22	2.00	0.42
17:K:294:LEU:HD12	17:K:303:LEU:HD11	2.01	0.42
17:K:478:LEU:HD23	17:K:488:VAL:HG22	2.02	0.42
25:S:129:LYS:HD2	25:S:129:LYS:HA	1.79	0.42
26:T:364:SER:O	26:T:368:ARG:HG3	2.20	0.42
26:T:731:SER:HA	26:T:734:VAL:HG12	2.02	0.42
44:v:193:LEU:HB2	44:v:225:ILE:HD12	2.02	0.42
44:v:318:SER:HA	44:v:321:LYS:HE3	2.01	0.42
6:6:21:A:C4	11:E:165:LYS:HG2	2.55	0.41
7:A:273:ILE:H	7:A:273:ILE:HG12	1.53	0.41
9:C:683:VAL:HG11	9:C:857:GLY:HA3	2.02	0.41
9:C:2023:VAL:HB	9:C:2026:LYS:HE3	2.01	0.41
21:O:98:LEU:HB3	21:O:129:PHE:HB3	2.02	0.41
24:R:139:LEU:HD13	28:V:626:PHE:HE1	1.85	0.41
26:T:551:VAL:HG12	26:T:700:PRO:HB2	2.02	0.41
34:Z:459:ARG:HB3	34:Z:460:THR:H	1.66	0.41
44:v:219:ALA:HB3	44:v:363:HIS:NE2	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:1665:GLN:HG3	7:A:1702:LEU:HD11	2.02	0.41
7:A:1954:LEU:HD23	7:A:1954:LEU:HA	1.92	0.41
8:B:380:ILE:HG12	8:B:399:LEU:HD11	2.02	0.41
9:C:704:MET:HE1	9:C:829:LYS:HD2	2.01	0.41
9:C:1672:LYS:HE2	9:C:1672:LYS:HB2	1.84	0.41
11:E:200:LYS:HB2	11:E:200:LYS:HE2	1.86	0.41
15:I:57:VAL:O	15:I:60:ILE:HG12	2.19	0.41
19:M:78:ILE:HD11	19:M:114:THR:HA	2.01	0.41
29:X:148:ALA:HB3	29:X:156:PHE:CE2	2.55	0.41
8:B:704:VAL:HG12	8:B:705:VAL:HG23	2.02	0.41
9:C:620:LEU:HD21	9:C:891:SER:HB3	2.02	0.41
9:C:1952:ALA:HB2	9:C:2055:LEU:HD22	2.01	0.41
44:v:362:ILE:HD12	44:v:365:ILE:HD11	2.02	0.41
2:l:210:U:H4'	2:l:211:U:OP1	2.21	0.41
7:A:1683:LYS:HD3	7:A:1683:LYS:HA	1.72	0.41
9:C:837:GLU:HG3	9:C:1083:TYR:CZ	2.54	0.41
9:C:1846:ILE:HD11	9:C:1945:LEU:HD11	2.02	0.41
9:C:1963:LEU:HD22	9:C:2007:VAL:HB	2.03	0.41
16:J:3:LEU:HD13	16:J:7:LEU:HB2	2.02	0.41
21:O:29:TRP:CE2	21:O:36:CYS:HB3	2.54	0.41
21:O:54:HIS:CD2	21:O:55:ARG:HG2	2.55	0.41
5:5:76:A:H2'	5:5:77:G:H8	1.85	0.41
7:A:799:PRO:HD2	16:J:283:ASN:HB2	2.03	0.41
7:A:832:TYR:HB3	7:A:835:ASP:CG	2.45	0.41
8:B:105:MET:HE3	8:B:105:MET:HB2	1.73	0.41
8:B:121:ASP:HB3	38:d:76:MET:HG2	2.03	0.41
8:B:171:LEU:HB2	8:B:174:GLU:HG3	2.02	0.41
9:C:1268:ILE:HD11	9:C:1282:LEU:HD23	2.03	0.41
29:X:150:LEU:HD23	29:X:150:LEU:HA	1.91	0.41
34:Z:214:MET:HB3	34:Z:218:PHE:HA	2.03	0.41
37:c:30:SER:O	37:c:34:GLN:HG2	2.21	0.41
39:e:78:MET:HE2	40:f:7:PRO:HB3	2.01	0.41
41:g:14:ASP:HA	41:g:32:ARG:HH12	1.85	0.41
44:v:89:THR:HA	44:v:92:PHE:CD2	2.55	0.41
5:5:17:U:H2'	5:5:18:C:C6	2.56	0.41
5:5:110:C:H2'	5:5:111:A:C8	2.56	0.41
7:A:36:LYS:HB3	7:A:36:LYS:HE2	1.78	0.41
9:C:466:LYS:HA	9:C:466:LYS:HD3	1.81	0.41
9:C:721:VAL:HG13	9:C:808:VAL:HG13	2.03	0.41
9:C:1434:ILE:HD12	9:C:1437:ARG:HD2	2.03	0.41
10:D:73:LYS:HA	10:D:73:LYS:HD3	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:E:185:LEU:HG	11:E:189:ARG:HE	1.84	0.41
12:F:500:PHE:HA	12:F:527:PHE:HZ	1.86	0.41
16:J:7:LEU:HD12	16:J:8:PRO:HD2	2.02	0.41
35:h:43:CYS:HA	35:h:69:LEU:HA	2.01	0.41
47:z:36:MET:HE3	47:z:36:MET:HB3	1.89	0.41
4:4:399:ARG:HB3	4:4:443:PHE:HB2	2.03	0.41
7:A:2114:PHE:O	7:A:2118:SER:HB3	2.21	0.41
8:B:313:GLN:HB2	51:B:1501:GTP:C6	2.55	0.41
8:B:426:GLU:H	8:B:426:GLU:HG2	1.63	0.41
8:B:531:TRP:HB3	8:B:538:HIS:HB3	2.03	0.41
10:D:90:ILE:HG23	10:D:115:LEU:HD11	2.03	0.41
10:D:288:LEU:HD13	10:D:288:LEU:HA	1.92	0.41
15:I:33:ALA:HB3	15:I:86:HIS:HB3	2.03	0.41
26:T:414:PRO:HG2	26:T:417:LEU:HD23	2.02	0.41
26:T:717:LYS:HA	26:T:717:LYS:HD3	1.86	0.41
27:U:53:PRO:HB3	27:U:122:HIS:HB2	2.01	0.41
34:Z:198:VAL:HB	34:Z:235:LEU:HD13	2.03	0.41
1:O:-16:C:H2'	28:V:519:LYS:HD2	2.02	0.41
8:B:761:SER:HB3	8:B:803:ARG:HH21	1.85	0.41
9:C:107:LYS:HE2	9:C:107:LYS:HB2	1.94	0.41
9:C:1166:ARG:O	9:C:1168:PRO:HD3	2.21	0.41
11:E:54:LEU:HD23	11:E:54:LEU:HA	1.88	0.41
12:F:463:PRO:HD2	12:F:481:TYR:HB3	2.02	0.41
12:F:545:ILE:HD13	12:F:557:TRP:CE2	2.56	0.41
13:G:428:GLU:O	13:G:432:VAL:HG23	2.21	0.41
25:S:112:ILE:HG22	25:S:113:THR:HG23	2.02	0.41
28:V:642:GLU:O	28:V:645:GLU:HG3	2.20	0.41
47:z:17:ASN:HB3	47:z:20:ASP:OD1	2.21	0.41
5:5:67:A:H2'	5:5:68:C:C6	2.56	0.41
5:5:95:G:H1	39:e:83:ASN:HD21	1.69	0.41
7:A:1186:LEU:HD23	7:A:1195:ARG:HB2	2.03	0.41
7:A:1207:PHE:HD1	7:A:1207:PHE:HA	1.71	0.41
7:A:1344:LYS:HE2	7:A:1344:LYS:HB2	1.76	0.41
7:A:1661:TRP:CD2	7:A:1700:GLY:HA3	2.55	0.41
8:B:799:GLU:HG2	8:B:802:HIS:HB2	2.02	0.41
9:C:482:ASN:HB2	9:C:485:GLN:HB3	2.03	0.41
9:C:511:ASN:HD21	52:C:2201:ADP:HN61	1.68	0.41
9:C:912:ASN:HD21	9:C:914:LYS:HB3	1.85	0.41
9:C:995:ASN:HA	9:C:998:VAL:HG12	2.03	0.41
9:C:1162:GLY:HA3	9:C:1168:PRO:HA	2.02	0.41
9:C:1263:PRO:HA	9:C:1264:PRO:HD3	1.94	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:501:GLN:HA	12:F:504:LYS:HE3	2.03	0.41
13:G:197:GLU:O	13:G:200:GLU:HG3	2.20	0.41
17:K:381:HIS:CG	17:K:384:HIS:HB2	2.55	0.41
21:O:34:LYS:HA	21:O:34:LYS:HD2	1.87	0.41
25:S:120:CYS:SG	25:S:128:HIS:CD2	3.14	0.41
26:T:659:LEU:HD11	26:T:894:VAL:HG21	2.03	0.41
28:V:402:LYS:HB2	28:V:402:LYS:HE3	1.83	0.41
28:V:492:MET:HE3	28:V:496:CYS:SG	2.61	0.41
29:X:82:ALA:HA	29:X:83:PRO:HD3	1.97	0.41
37:c:28:PRO:HA	40:f:43:GLN:HB2	2.03	0.41
37:c:45:ASN:HB3	37:c:108:VAL:HG12	2.03	0.41
39:e:33:VAL:HB	39:e:84:ILE:HG23	2.02	0.41
2:l:200:U:H2'	2:l:201:A:C8	2.56	0.41
4:4:157:MET:HE3	4:4:173:LEU:HD21	2.02	0.41
5:5:63:A:H2'	5:5:64:G:C8	2.56	0.41
5:5:116:U:P	39:e:40:ASN:HD21	2.44	0.41
7:A:380:LEU:HD23	7:A:380:LEU:HA	1.94	0.41
7:A:1840:LYS:HD2	7:A:1840:LYS:HA	1.95	0.41
9:C:952:ARG:HA	9:C:952:ARG:HD3	1.89	0.41
9:C:1072:LEU:HD21	9:C:1081:MET:HE3	2.02	0.41
9:C:1204:ILE:H	9:C:1204:ILE:HG13	1.64	0.41
9:C:1805:GLU:HG2	9:C:1809:ASP:HB3	2.02	0.41
9:C:2063:GLY:H	9:C:2111:ASP:CG	2.28	0.41
11:E:37:LEU:HD11	11:E:155:ALA:HA	2.03	0.41
24:R:70:LEU:HD13	24:R:70:LEU:HA	1.91	0.41
41:g:6:PRO:HA	41:g:7:PRO:HD3	2.00	0.41
4:4:437:THR:HG23	4:4:450:MET:SD	2.61	0.40
7:A:601:GLN:HG2	7:A:640:PHE:HB2	2.04	0.40
7:A:1237:MET:HG2	7:A:1284:LEU:HD13	2.02	0.40
9:C:1015:PHE:HB3	9:C:1060:ASN:HD21	1.85	0.40
9:C:1364:ILE:HA	9:C:1367:MET:SD	2.61	0.40
9:C:1519:ARG:HH21	9:C:1689:GLY:HA2	1.86	0.40
11:E:11:TRP:CZ2	11:E:41:LYS:HG2	2.57	0.40
11:E:33:ARG:H	11:E:33:ARG:HG2	1.66	0.40
11:E:70:LYS:HD2	11:E:89:ILE:HG22	2.03	0.40
12:F:159:HIS:HA	12:F:160:PRO:HD3	1.94	0.40
21:O:57:ILE:HB	21:O:60:PHE:HB3	2.03	0.40
36:b:3:LEU:HD12	36:b:3:LEU:HA	1.94	0.40
40:f:21:VAL:HG13	40:f:72:ILE:HG22	2.03	0.40
44:v:78:VAL:HG22	44:v:237:ILE:HB	2.03	0.40
44:v:193:LEU:HD12	44:v:225:ILE:HG23	2.01	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:w:78:LEU:HD12	45:w:78:LEU:HA	1.96	0.40
4:4:295:ILE:HD11	4:4:309:PHE:HD2	1.86	0.40
9:C:733:LYS:HD2	9:C:733:LYS:HA	1.73	0.40
9:C:1145:LYS:HE3	9:C:1145:LYS:HB3	1.94	0.40
9:C:1947:GLN:HB3	9:C:2114:MET:HE1	2.03	0.40
9:C:1996:LEU:HB3	9:C:1997:LEU:H	1.63	0.40
26:T:1002:ALA:HB1	26:T:1106:SER:HB2	2.04	0.40
27:U:124:LEU:HD12	27:U:124:LEU:HA	1.91	0.40
28:V:450:ILE:H	28:V:450:ILE:HG12	1.65	0.40
40:f:14:LEU:HD23	40:f:14:LEU:HA	1.93	0.40
7:A:1307:MET:HE3	7:A:1307:MET:HB2	2.00	0.40
8:B:826:ARG:HA	8:B:826:ARG:HD3	1.92	0.40
8:B:834:VAL:HG22	8:B:899:SER:HB3	2.03	0.40
9:C:636:ILE:HD11	9:C:922:TYR:HB3	2.04	0.40
10:D:129:THR:HA	10:D:153:PHE:HB3	2.04	0.40
11:E:188:ARG:HA	11:E:191:LEU:CD2	2.52	0.40
11:E:201:LYS:HD2	11:E:201:LYS:HA	1.82	0.40
18:L:65:ARG:NE	18:L:107:MET:HE1	2.33	0.40
19:M:116:LEU:HD12	19:M:116:LEU:HA	1.90	0.40
26:T:821:ILE:HD13	26:T:866:PHE:HB2	2.03	0.40
35:a:20:ILE:HB	35:a:79:SER:HB3	2.04	0.40
45:w:80:PRO:HA	45:w:81:PRO:HD3	1.94	0.40
45:w:135:VAL:HG13	45:w:136:PHE:HD1	1.86	0.40
5:5:31:U:H2'	5:5:32:C:H6	1.86	0.40
6:6:11:A:H2'	6:6:12:A:C8	2.56	0.40
7:A:494:LEU:HD21	7:A:562:VAL:HG21	2.04	0.40
7:A:1382:SER:HA	7:A:1415:GLY:HA2	2.02	0.40
7:A:2107:PRO:HB2	7:A:2110:VAL:HG22	2.02	0.40
18:L:18:ARG:HB2	18:L:23:THR:HG22	2.02	0.40
26:T:1117:ILE:HG22	26:T:1135:ALA:HA	2.03	0.40
28:V:331:ARG:O	28:V:335:MET:HG3	2.21	0.40
33:Y:7:LEU:HD12	33:Y:7:LEU:HA	1.85	0.40
34:Z:341:SER:HA	34:Z:386:PHE:HZ	1.86	0.40
44:v:277:ILE:H	44:v:277:ILE:HG12	1.59	0.40
45:w:146:LYS:HE3	46:x:100:LYS:HG3	2.04	0.40
2:1:196:U:H2'	2:1:197:C:C6	2.57	0.40
4:4:104:ILE:HB	4:4:116:TRP:HB2	2.02	0.40
7:A:619:GLY:HA3	7:A:620:PRO:HD3	1.81	0.40
7:A:1303:LEU:HA	7:A:1303:LEU:HD23	1.88	0.40
7:A:1850:ARG:HG3	7:A:1879:PHE:HZ	1.86	0.40
7:A:1905:LEU:HD12	7:A:1905:LEU:HA	1.92	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:A:1916:LEU:HD11	29:X:102:LEU:HD22	2.03	0.40
7:A:1993:LYS:HE2	7:A:1993:LYS:HB3	1.92	0.40
8:B:764:ASP:O	8:B:768:GLN:HG3	2.21	0.40
8:B:788:LYS:HB3	8:B:788:LYS:HE2	1.84	0.40
11:E:78:MET:HE2	11:E:78:MET:HB3	1.98	0.40
11:E:198:ILE:H	11:E:198:ILE:HG12	1.71	0.40
11:E:230:GLU:O	11:E:230:GLU:HG3	2.21	0.40
12:F:572:LYS:HA	12:F:572:LYS:HD2	1.83	0.40
26:T:458:LYS:HA	26:T:461:LYS:HB2	2.03	0.40
44:v:286:THR:O	44:v:290:VAL:HG13	2.22	0.40
46:x:113:LEU:HD23	46:x:114:LYS:O	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	4	403/646 (62%)	397 (98%)	6 (2%)	0	100	100
7	A	2253/2335 (96%)	2195 (97%)	56 (2%)	2 (0%)	48	76
8	B	898/972 (92%)	862 (96%)	34 (4%)	2 (0%)	43	71
9	C	1917/2136 (90%)	1830 (96%)	83 (4%)	4 (0%)	43	71
10	D	297/357 (83%)	283 (95%)	14 (5%)	0	100	100
11	E	537/802 (67%)	522 (97%)	15 (3%)	0	100	100
12	F	694/855 (81%)	664 (96%)	27 (4%)	3 (0%)	30	58
13	G	580/848 (68%)	556 (96%)	24 (4%)	0	100	100
14	H	42/166 (25%)	41 (98%)	1 (2%)	0	100	100
15	I	164/285 (58%)	163 (99%)	1 (1%)	0	100	100
16	J	196/536 (37%)	186 (95%)	9 (5%)	1 (0%)	24	53

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	K	400/514 (78%)	388 (97%)	12 (3%)	0	100	100
18	L	137/367 (37%)	135 (98%)	2 (2%)	0	100	100
19	M	171/198 (86%)	165 (96%)	6 (4%)	0	100	100
20	N	98/229 (43%)	94 (96%)	4 (4%)	0	100	100
21	O	157/166 (95%)	149 (95%)	8 (5%)	0	100	100
22	P	68/301 (23%)	68 (100%)	0	0	100	100
23	Q	1319/1485 (89%)	1296 (98%)	23 (2%)	0	100	100
24	R	99/425 (23%)	91 (92%)	7 (7%)	1 (1%)	12	37
25	S	39/586 (7%)	38 (97%)	1 (3%)	0	100	100
26	T	775/1227 (63%)	725 (94%)	48 (6%)	2 (0%)	36	64
27	U	133/2752 (5%)	132 (99%)	1 (1%)	0	100	100
28	V	460/908 (51%)	444 (96%)	15 (3%)	1 (0%)	43	71
29	X	209/258 (81%)	200 (96%)	9 (4%)	0	100	100
33	Y	205/345 (59%)	196 (96%)	9 (4%)	0	100	100
34	Z	341/654 (52%)	310 (91%)	31 (9%)	0	100	100
35	a	69/240 (29%)	68 (99%)	1 (1%)	0	100	100
35	h	69/240 (29%)	68 (99%)	1 (1%)	0	100	100
36	b	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
36	i	79/119 (66%)	78 (99%)	1 (1%)	0	100	100
37	c	94/118 (80%)	89 (95%)	5 (5%)	0	100	100
37	j	94/118 (80%)	91 (97%)	3 (3%)	0	100	100
38	d	83/126 (66%)	78 (94%)	5 (6%)	0	100	100
38	k	79/126 (63%)	77 (98%)	2 (2%)	0	100	100
39	e	75/92 (82%)	72 (96%)	3 (4%)	0	100	100
39	l	75/92 (82%)	75 (100%)	0	0	100	100
40	f	71/86 (83%)	68 (96%)	3 (4%)	0	100	100
40	m	71/86 (83%)	71 (100%)	0	0	100	100
41	g	73/76 (96%)	72 (99%)	1 (1%)	0	100	100
41	n	72/76 (95%)	68 (94%)	4 (6%)	0	100	100
42	q	135/504 (27%)	135 (100%)	0	0	100	100
42	r	133/504 (26%)	130 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
42	s	136/504 (27%)	132 (97%)	4 (3%)	0	100	100
42	t	134/504 (27%)	131 (98%)	3 (2%)	0	100	100
43	u	223/225 (99%)	222 (100%)	1 (0%)	0	100	100
44	v	388/411 (94%)	375 (97%)	12 (3%)	1 (0%)	36	64
45	w	142/146 (97%)	135 (95%)	7 (5%)	0	100	100
46	x	89/174 (51%)	83 (93%)	6 (7%)	0	100	100
47	z	76/263 (29%)	75 (99%)	1 (1%)	0	100	100
All	All	15132/25302 (60%)	14600 (96%)	515 (3%)	17 (0%)	49	76

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
9	C	1439	TRP
9	C	1996	LEU
12	F	354	PRO
16	J	214	ILE
26	T	798	VAL
7	A	1512	SER
8	B	796	VAL
9	C	1412	THR
24	R	63	VAL
7	A	1092	ILE
8	B	569	ARG
9	C	531	ILE
26	T	630	ASP
28	V	353	ILE
12	F	267	ILE
44	v	383	ASN
12	F	210	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	4	363/572 (64%)	362 (100%)	1 (0%)	86	95
7	A	2043/2108 (97%)	2012 (98%)	31 (2%)	57	82
8	B	800/866 (92%)	783 (98%)	17 (2%)	47	76
9	C	1617/1908 (85%)	1602 (99%)	15 (1%)	70	88
10	D	255/300 (85%)	249 (98%)	6 (2%)	43	73
11	E	204/709 (29%)	202 (99%)	2 (1%)	68	87
12	F	293/749 (39%)	288 (98%)	5 (2%)	53	80
13	G	260/751 (35%)	258 (99%)	2 (1%)	73	89
15	I	98/240 (41%)	96 (98%)	2 (2%)	48	77
16	J	178/458 (39%)	175 (98%)	3 (2%)	53	80
17	K	297/441 (67%)	293 (99%)	4 (1%)	61	84
18	L	119/326 (36%)	111 (93%)	8 (7%)	15	41
19	M	121/171 (71%)	116 (96%)	5 (4%)	27	60
20	N	91/203 (45%)	85 (93%)	6 (7%)	15	41
21	O	129/134 (96%)	127 (98%)	2 (2%)	55	81
24	R	88/381 (23%)	86 (98%)	2 (2%)	44	74
25	S	33/520 (6%)	32 (97%)	1 (3%)	36	68
26	T	675/1073 (63%)	661 (98%)	14 (2%)	47	76
27	U	63/2432 (3%)	62 (98%)	1 (2%)	55	81
28	V	420/838 (50%)	409 (97%)	11 (3%)	40	72
29	X	176/223 (79%)	169 (96%)	7 (4%)	28	61
33	Y	168/308 (54%)	160 (95%)	8 (5%)	23	54
34	Z	298/572 (52%)	287 (96%)	11 (4%)	30	63
35	a	67/177 (38%)	65 (97%)	2 (3%)	36	68
36	b	77/101 (76%)	74 (96%)	3 (4%)	28	61
37	c	93/110 (84%)	88 (95%)	5 (5%)	20	49
38	d	74/101 (73%)	68 (92%)	6 (8%)	11	31
39	e	72/84 (86%)	72 (100%)	0	100	100
40	f	61/74 (82%)	60 (98%)	1 (2%)	55	81
41	g	65/66 (98%)	61 (94%)	4 (6%)	16	44
44	v	345/361 (96%)	328 (95%)	17 (5%)	22	52
45	w	132/134 (98%)	126 (96%)	6 (4%)	24	56

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
46	x	76/143 (53%)	70 (92%)	6 (8%)	11	33
47	z	58/215 (27%)	58 (100%)	0	100	100
All	All	9909/17849 (56%)	9695 (98%)	214 (2%)	45	75

All (214) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	4	344	MET
7	A	47	GLU
7	A	54	VAL
7	A	97	HIS
7	A	176	LEU
7	A	250	VAL
7	A	273	ILE
7	A	283	VAL
7	A	377	GLU
7	A	432	ARG
7	A	469	LYS
7	A	512	ASN
7	A	604	MET
7	A	668	VAL
7	A	766	THR
7	A	787	GLU
7	A	871	TYR
7	A	899	MET
7	A	1018	ASN
7	A	1070	ASP
7	A	1144	LYS
7	A	1193	GLU
7	A	1207	PHE
7	A	1255	THR
7	A	1518	LEU
7	A	1528	GLN
7	A	1694	ILE
7	A	1899	VAL
7	A	1924	LEU
7	A	1983	LEU
7	A	2179	HIS
7	A	2325	VAL
8	B	57	VAL
8	B	58	VAL

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Mol	Chain	Res	Type
8	B	87	GLN
8	B	122	LEU
8	B	165	LEU
8	B	221	ILE
8	B	308	CYS
8	B	357	THR
8	B	484	THR
8	B	501	ILE
8	B	628	VAL
8	B	669	THR
8	B	685	ILE
8	B	696	LEU
8	B	708	THR
8	B	709	TRP
8	B	824	THR
9	C	489	TYR
9	C	501	LEU
9	C	517	MET
9	C	614	LEU
9	C	751	PHE
9	C	893	MET
9	C	1072	LEU
9	C	1117	MET
9	C	1284	VAL
9	C	1328	PHE
9	C	1380	THR
9	C	1550	ILE
9	C	1778	HIS
9	C	1788	LEU
9	C	1982	VAL
10	D	209	ILE
10	D	219	VAL
10	D	259	VAL
10	D	262	TRP
10	D	288	LEU
10	D	352	TYR
11	E	153	SER
11	E	189	ARG
12	F	456	LEU
12	F	480	VAL
12	F	486	VAL
12	F	489	MET

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Mol	Chain	Res	Type
12	F	658	VAL
13	G	220	LEU
13	G	440	LEU
15	I	25	VAL
15	I	68	PHE
16	J	124	VAL
16	J	232	SER
16	J	278	VAL
17	K	217	GLN
17	K	220	VAL
17	K	261	LEU
17	K	450	VAL
18	L	40	THR
18	L	43	LEU
18	L	58	VAL
18	L	97	LEU
18	L	128	VAL
18	L	133	LYS
18	L	137	MET
18	L	146	THR
19	M	27	THR
19	M	42	ASN
19	M	64	ASP
19	M	75	GLU
19	M	139	THR
20	N	30	TYR
20	N	193	VAL
20	N	202	ASP
20	N	208	LYS
20	N	214	THR
20	N	224	MET
21	O	27	LEU
21	O	30	LYS
24	R	44	LEU
24	R	142	ILE
25	S	116	ARG
26	T	364	SER
26	T	366	GLN
26	T	375	GLU
26	T	381	ARG
26	T	433	VAL
26	T	523	LYS

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Mol	Chain	Res	Type
26	T	667	LEU
26	T	764	LEU
26	T	767	LEU
26	T	803	VAL
26	T	820	VAL
26	T	894	VAL
26	T	946	MET
26	T	1162	ARG
27	U	131	LYS
28	V	173	VAL
28	V	218	LEU
28	V	274	CYS
28	V	328	ILE
28	V	359	LEU
28	V	450	ILE
28	V	452	LEU
28	V	494	LEU
28	V	593	TYR
28	V	615	LEU
28	V	644	ARG
29	X	52	ASN
29	X	97	PHE
29	X	124	LEU
29	X	126	VAL
29	X	149	LEU
29	X	153	ASN
29	X	218	ASP
33	Y	29	ARG
33	Y	30	GLN
33	Y	32	VAL
33	Y	33	VAL
33	Y	82	ARG
33	Y	99	THR
33	Y	109	GLN
33	Y	162	GLN
34	Z	198	VAL
34	Z	204	TYR
34	Z	259	ASP
34	Z	285	MET
34	Z	355	SER
34	Z	386	PHE
34	Z	387	SER

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Mol	Chain	Res	Type
34	Z	407	ILE
34	Z	410	PHE
34	Z	434	ASP
34	Z	436	LYS
35	a	7	SER
35	a	38	MET
36	b	4	VAL
36	b	32	VAL
36	b	53	VAL
37	c	22	GLU
37	c	53	LEU
37	c	90	VAL
37	c	96	ILE
37	c	115	ILE
38	d	10	LEU
38	d	14	GLU
38	d	16	HIS
38	d	45	ASN
38	d	48	VAL
38	d	61	VAL
40	f	58	HIS
41	g	32	ARG
41	g	38	MET
41	g	45	CYS
41	g	48	MET
44	v	40	PHE
44	v	42	THR
44	v	50	LEU
44	v	64	ILE
44	v	89	THR
44	v	102	ILE
44	v	112	LEU
44	v	115	THR
44	v	135	VAL
44	v	145	ASN
44	v	186	LEU
44	v	233	MET
44	v	248	LEU
44	v	258	VAL
44	v	261	GLU
44	v	348	LEU
44	v	403	MET

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Mol	Chain	Res	Type
45	w	46	VAL
45	w	65	ILE
45	w	73	LYS
45	w	75	ASP
45	w	85	VAL
45	w	125	TYR
46	x	89	ILE
46	x	90	HIS
46	x	92	LYS
46	x	99	ILE
46	x	103	HIS
46	x	147	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (100) such sidechains are listed below:

Mol	Chain	Res	Type
7	A	243	ASN
7	A	325	HIS
7	A	467	GLN
7	A	512	ASN
7	A	793	ASN
7	A	994	ASN
7	A	1014	ASN
7	A	1018	ASN
7	A	1023	ASN
7	A	1075	GLN
7	A	1096	HIS
7	A	1188	ASN
7	A	1446	GLN
7	A	1450	GLN
7	A	1469	ASN
7	A	1767	ASN
7	A	1947	ASN
7	A	1998	ASN
7	A	2123	GLN
7	A	2179	HIS
7	A	2316	ASN
7	A	2321	GLN
8	B	60	HIS
8	B	140	HIS
8	B	513	ASN
8	B	680	ASN

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Mol	Chain	Res	Type
8	B	743	ASN
8	B	768	GLN
8	B	892	GLN
8	B	928	HIS
9	C	485	GLN
9	C	511	ASN
9	C	678	ASN
9	C	902	ASN
9	C	1069	GLN
9	C	1086	GLN
9	C	1101	ASN
9	C	1124	GLN
9	C	1131	GLN
9	C	1189	HIS
9	C	1191	GLN
9	C	1250	HIS
9	C	1444	ASN
9	C	1449	ASN
9	C	1480	GLN
9	C	1515	HIS
9	C	1526	HIS
9	C	1568	GLN
9	C	1727	HIS
9	C	1885	ASN
9	C	1965	HIS
10	D	287	ASN
10	D	331	ASN
11	E	95	GLN
12	F	478	ASN
12	F	735	ASN
13	G	188	GLN
13	G	234	ASN
13	G	275	ASN
13	G	291	GLN
13	G	446	GLN
13	G	449	GLN
15	I	78	ASN
16	J	231	HIS
17	K	344	GLN
17	K	408	ASN
17	K	417	ASN
19	M	161	GLN

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Mol	Chain	Res	Type
21	O	38	ASN
21	O	81	GLN
21	O	102	ASN
21	O	108	ASN
26	T	548	ASN
27	U	20	GLN
27	U	60	HIS
28	V	324	HIS
28	V	365	GLN
28	V	368	HIS
28	V	390	ASN
28	V	394	ASN
28	V	629	ASN
29	X	153	ASN
29	X	217	GLN
33	Y	64	GLN
33	Y	95	ASN
34	Z	252	GLN
34	Z	329	GLN
37	c	17	GLN
39	e	27	ASN
39	e	40	ASN
39	e	65	HIS
41	g	22	ASN
44	v	66	GLN
44	v	81	GLN
44	v	308	HIS
44	v	383	ASN
45	w	39	ASN
45	w	114	GLN
47	z	13	GLN
47	z	17	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	0	24/57 (42%)	9 (37%)	0
2	1	44/277 (15%)	15 (34%)	6 (13%)
3	2	40/150 (26%)	15 (37%)	0
5	5	107/117 (91%)	27 (25%)	2 (1%)
6	6	58/125 (46%)	9 (15%)	0

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
All	All	273/726 (37%)	75 (27%)	8 (2%)

All (75) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	0	-21	G
1	0	-19	A
1	0	-17	A
1	0	-15	C
1	0	-14	C
1	0	-13	G
1	0	-7	C
1	0	-6	U
1	0	-1	G
2	1	3	A
2	1	12	A
2	1	15	C
2	1	18	G
2	1	193	U
2	1	196	U
2	1	202	A
2	1	207	A
2	1	208	A
2	1	209	C
2	1	210	U
2	1	211	U
2	1	212	U
2	1	213	G
2	1	214	C
3	2	2	U
3	2	6	U
3	2	7	U
3	2	10	A
3	2	11	C
3	2	14	A
3	2	15	U
3	2	17	A
3	2	18	G
3	2	23	G
3	2	25	A
3	2	30	A
3	2	77	U

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Mol	Chain	Res	Type
3	2	78	U
3	2	79	U
5	5	8	G
5	5	9	G
5	5	20	G
5	5	21	A
5	5	22	U
5	5	23	C
5	5	24	G
5	5	25	C
5	5	28	A
5	5	34	U
5	5	45	C
5	5	71	C
5	5	72	U
5	5	73	C
5	5	77	G
5	5	78	U
5	5	90	U
5	5	92	U
5	5	94	U
5	5	95	G
5	5	97	G
5	5	98	G
5	5	105	U
5	5	106	U
5	5	107	U
5	5	108	G
5	5	115	C
6	6	19	G
6	6	21	A
6	6	33	C
6	6	38	G
6	6	40	C
6	6	46	U
6	6	47	G
6	6	51	G
6	6	62	G

All (8) RNA pucker outliers are listed below:

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Mol	Chain	Res	Type
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Mol	Chain	Res	Type
2	1	192	U
2	1	207	A
2	1	208	A
2	1	209	C
2	1	211	U
2	1	212	U
5	5	96	A
5	5	105	U

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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	$\# Z > 2$
16	SEP	J	224	16	8,9,10	1.54	1 (12%)	8,12,14	1.60	2 (25%)

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
16	SEP	J	224	16	-	3/5/8/10	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
16	J	224	SEP	P-O1P	3.35	1.61	1.50

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	J	224	SEP	P-OG-CB	-3.05	109.88	118.30
16	J	224	SEP	OG-CB-CA	2.76	110.83	108.14

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
16	J	224	SEP	CB-OG-P-O2P
16	J	224	SEP	CB-OG-P-O3P
16	J	224	SEP	CB-OG-P-O1P

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 18 ligands modelled in this entry, 13 are monoatomic - leaving 5 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
52	ADP	C	2202	48	27,29,29	1.37	4 (14%)	42,45,45	1.96	10 (23%)
52	ADP	C	2201	-	27,29,29	1.37	4 (14%)	42,45,45	1.97	11 (26%)
51	GTP	B	1501	48	30,34,34	0.85	1 (3%)	46,54,54	1.77	11 (23%)
50	IHP	A	3000	-	36,36,36	1.88	6 (16%)	54,60,60	0.91	0
54	ATP	v	702	48	29,33,33	0.31	0	44,52,52	0.52	1 (2%)

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
52	ADP	C	2202	48	-	4/16/32/32	0/3/3/3
52	ADP	C	2201	-	-	3/16/32/32	0/3/3/3
51	GTP	B	1501	48	-	4/22/38/38	0/3/3/3
50	IHP	A	3000	-	-	7/30/54/54	0/1/1/1
54	ATP	v	702	48	-	3/22/38/38	0/3/3/3

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	C	2201	ADP	C5-C4	4.61	1.47	1.39
52	C	2202	ADP	C5-C4	4.59	1.47	1.39
50	A	3000	IHP	P2-O12	4.58	1.68	1.59
50	A	3000	IHP	P5-O15	4.47	1.67	1.59
50	A	3000	IHP	P6-O16	4.29	1.67	1.59
50	A	3000	IHP	P3-O13	4.13	1.67	1.59
50	A	3000	IHP	P4-O14	4.08	1.67	1.59
50	A	3000	IHP	P1-O11	3.88	1.66	1.59
52	C	2202	ADP	C5-C6	2.75	1.48	1.41
52	C	2201	ADP	C5-C6	2.71	1.48	1.41
52	C	2202	ADP	C8-N7	2.43	1.36	1.31
52	C	2201	ADP	C8-N7	2.43	1.36	1.31
52	C	2201	ADP	C5-N7	-2.14	1.35	1.39
52	C	2202	ADP	C5-N7	-2.13	1.35	1.39
51	B	1501	GTP	C2-N3	2.12	1.38	1.33

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	C	2201	ADP	C5-C4-N3	-6.22	118.64	126.75
52	C	2202	ADP	C5-C4-N3	-6.17	118.70	126.75
52	C	2201	ADP	N3-C4-N9	4.87	135.11	127.08
51	B	1501	GTP	C5-C4-N3	-4.85	120.59	128.46
52	C	2202	ADP	N3-C4-N9	4.79	134.98	127.08
51	B	1501	GTP	C2-N3-C4	4.43	120.20	112.30
51	B	1501	GTP	PB-O3B-PG	-3.95	119.28	132.83
52	C	2201	ADP	C2-N3-C4	3.87	120.90	111.75
52	C	2202	ADP	C2-N3-C4	3.84	120.83	111.75
51	B	1501	GTP	PA-O3A-PB	-3.73	120.02	132.83
52	C	2201	ADP	PA-O3A-PB	-3.40	121.16	132.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	C	2202	ADP	PA-O3A-PB	-3.38	121.23	132.83
52	C	2202	ADP	C4-C5-N7	-3.29	106.62	110.62
52	C	2201	ADP	C4-C5-N7	-3.28	106.62	110.62
51	B	1501	GTP	N9-C4-N3	3.21	132.38	125.94
52	C	2201	ADP	N3-C2-N1	-3.15	123.68	128.60
52	C	2202	ADP	N3-C2-N1	-3.10	123.75	128.60
51	B	1501	GTP	C2-N1-C6	-2.81	119.98	125.10
52	C	2201	ADP	C5-N7-C8	2.76	107.43	103.51
52	C	2202	ADP	C5-N7-C8	2.73	107.39	103.51
51	B	1501	GTP	N9-C8-N7	-2.65	108.41	113.39
52	C	2201	ADP	C4-N9-C8	2.59	108.53	105.73
51	B	1501	GTP	C5-C6-N1	2.56	119.69	113.19
52	C	2202	ADP	C4-N9-C8	2.50	108.43	105.73
51	B	1501	GTP	C8-N7-C5	2.44	108.65	104.24
52	C	2202	ADP	C3'-C2'-C1'	2.42	106.03	101.43
52	C	2201	ADP	C3'-C2'-C1'	2.42	106.02	101.43
51	B	1501	GTP	O6-C6-C5	-2.38	120.28	126.60
52	C	2202	ADP	C6-C5-N7	2.18	136.09	132.02
52	C	2201	ADP	C6-C5-N7	2.17	136.07	132.02
51	B	1501	GTP	C3'-C2'-C1'	2.13	105.47	101.43
54	v	702	ATP	PB-O3B-PG	2.06	139.91	132.83
52	C	2201	ADP	N9-C8-N7	-2.01	111.17	113.91

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
50	A	3000	IHP	C2-O12-P2-O42
50	A	3000	IHP	C3-O13-P3-O23
50	A	3000	IHP	C6-O16-P6-O46
51	B	1501	GTP	PB-O3B-PG-O3G
52	C	2201	ADP	C5'-O5'-PA-O3A
52	C	2202	ADP	C5'-O5'-PA-O3A
51	B	1501	GTP	O4'-C4'-C5'-O5'
51	B	1501	GTP	C3'-C4'-C5'-O5'
52	C	2202	ADP	C3'-C4'-C5'-O5'
54	v	702	ATP	O4'-C4'-C5'-O5'
52	C	2202	ADP	O4'-C4'-C5'-O5'
50	A	3000	IHP	C1-O11-P1-O21
50	A	3000	IHP	C6-O16-P6-O26
51	B	1501	GTP	PB-O3B-PG-O1G
50	A	3000	IHP	C4-O14-P4-O34

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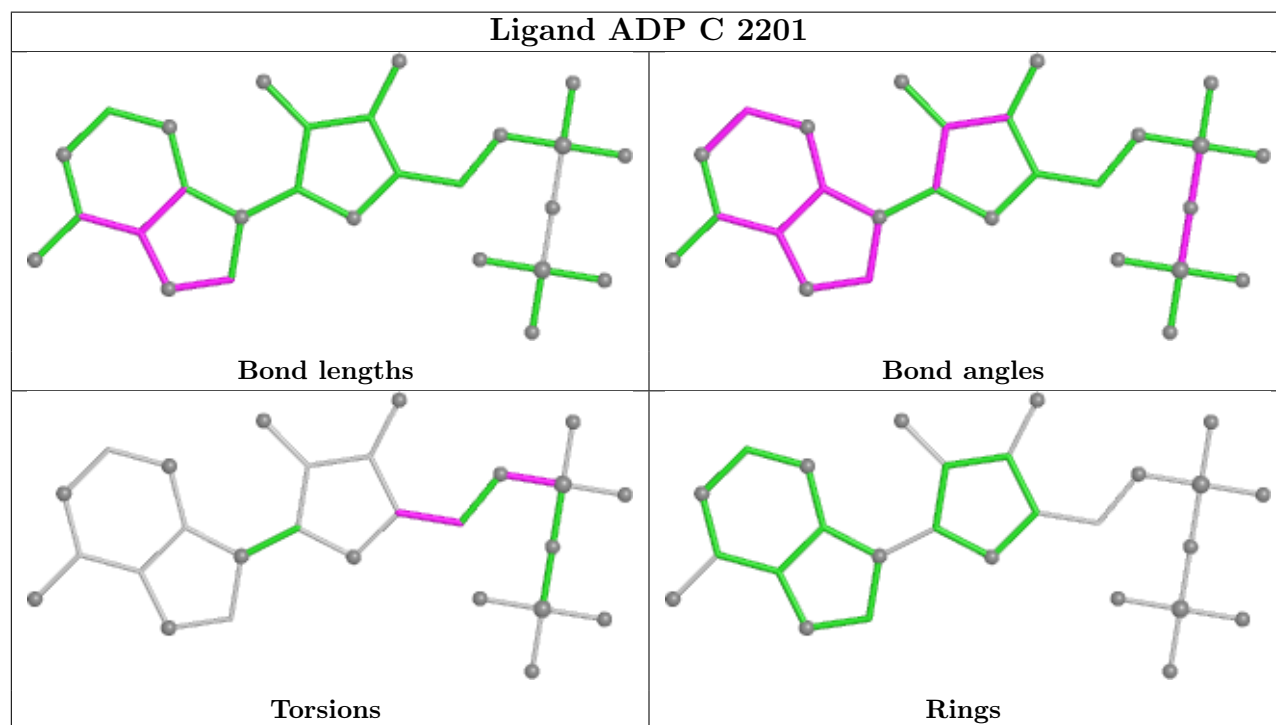
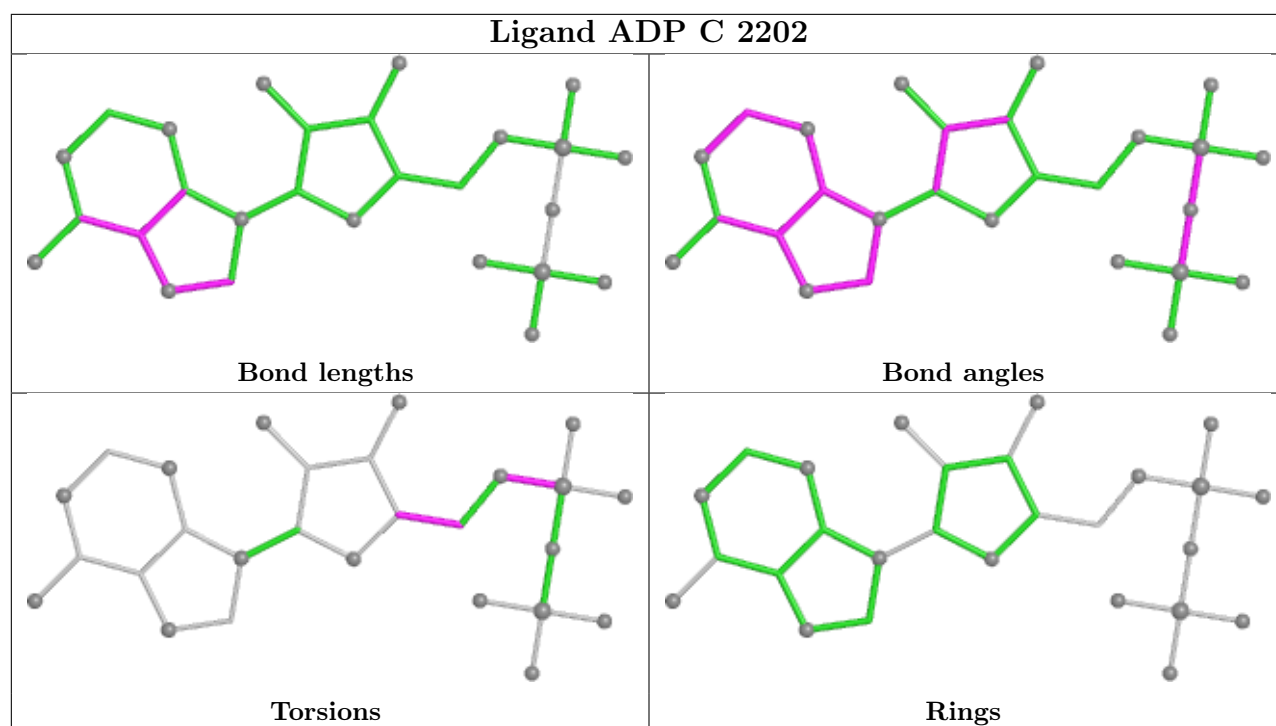
Mol	Chain	Res	Type	Atoms
52	C	2201	ADP	C5'-O5'-PA-O1A
52	C	2202	ADP	C5'-O5'-PA-O1A
54	v	702	ATP	C3'-C4'-C5'-O5'
50	A	3000	IHP	C4-O14-P4-O44
54	v	702	ATP	PB-O3A-PA-O2A
52	C	2201	ADP	O4'-C4'-C5'-O5'

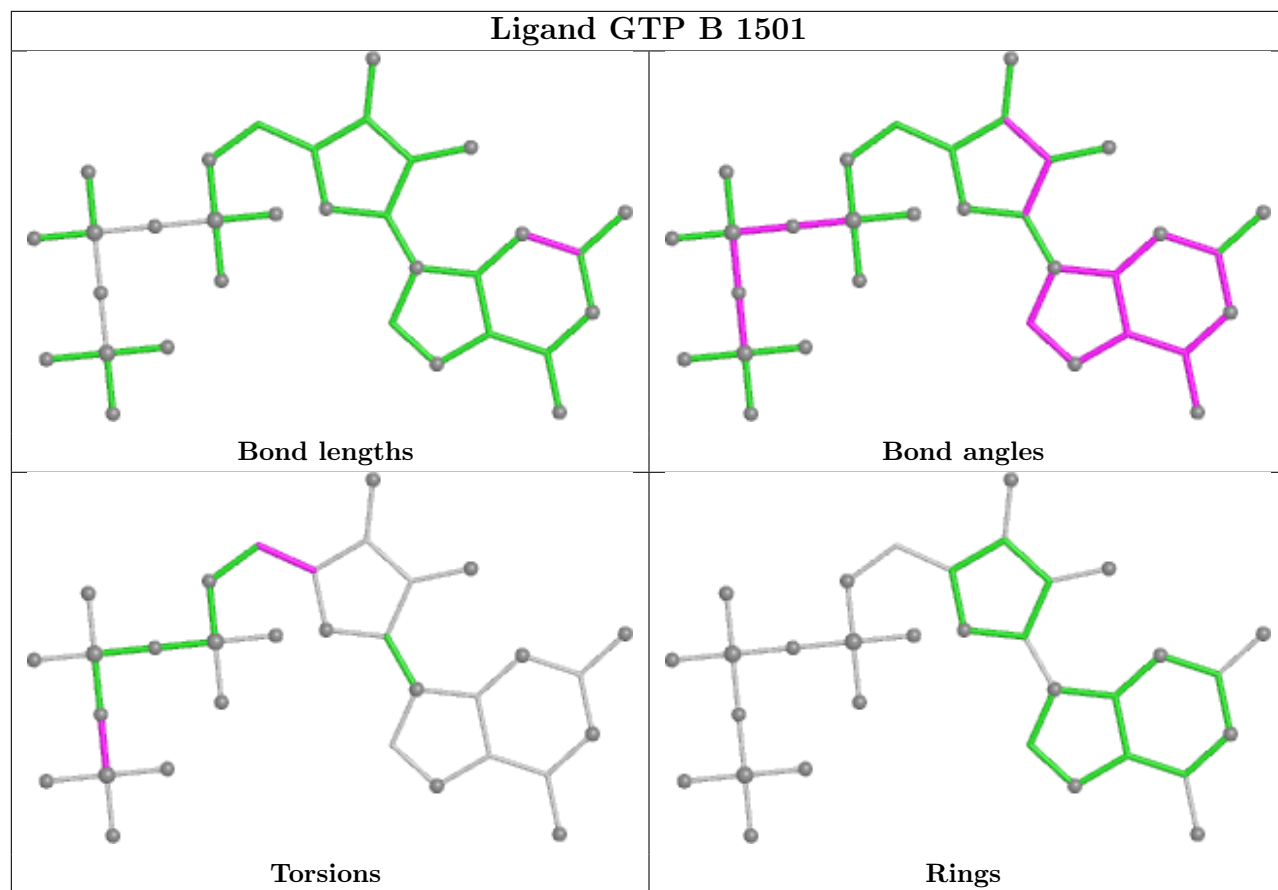
There are no ring outliers.

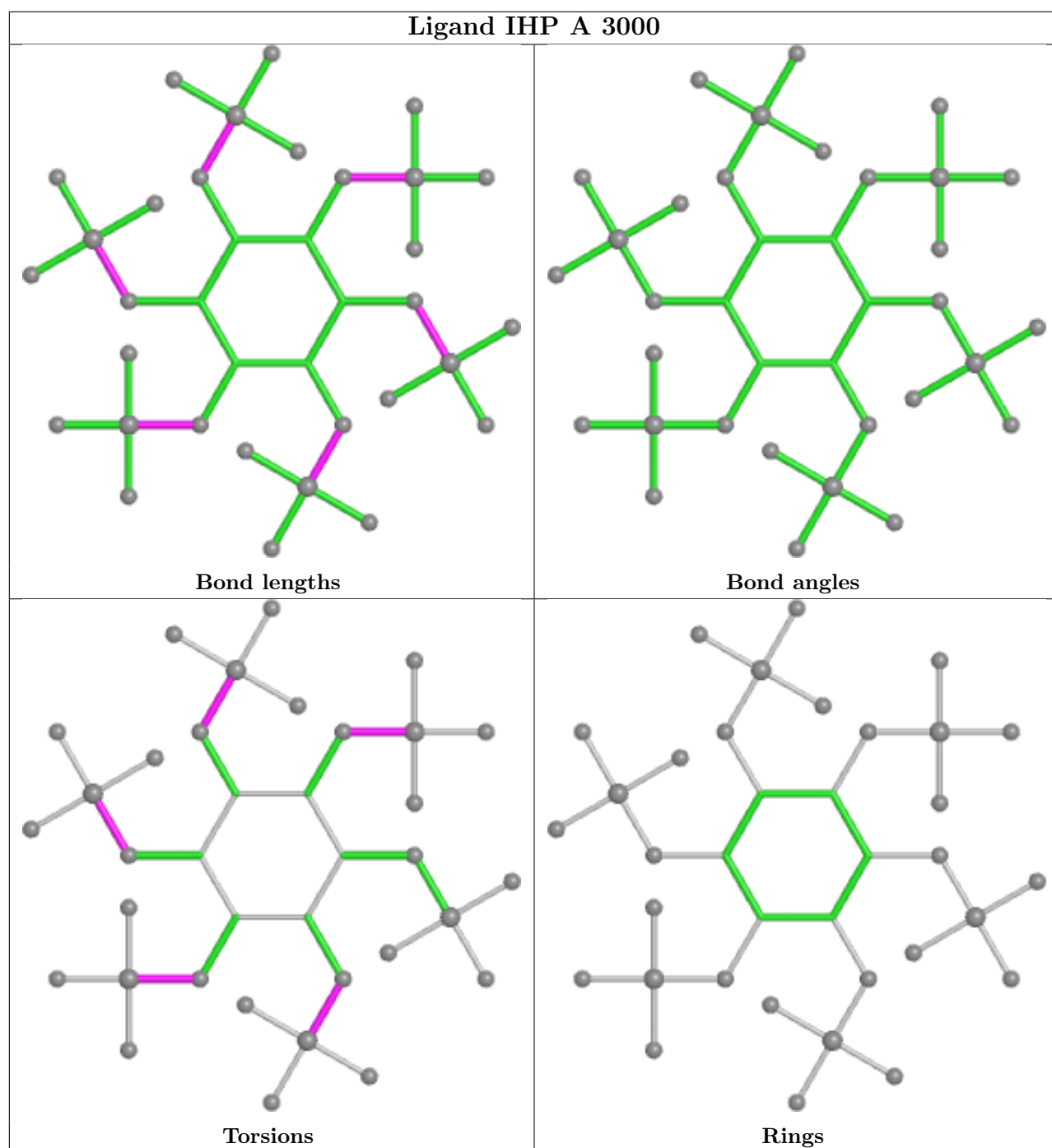
2 monomers are involved in 2 short contacts:

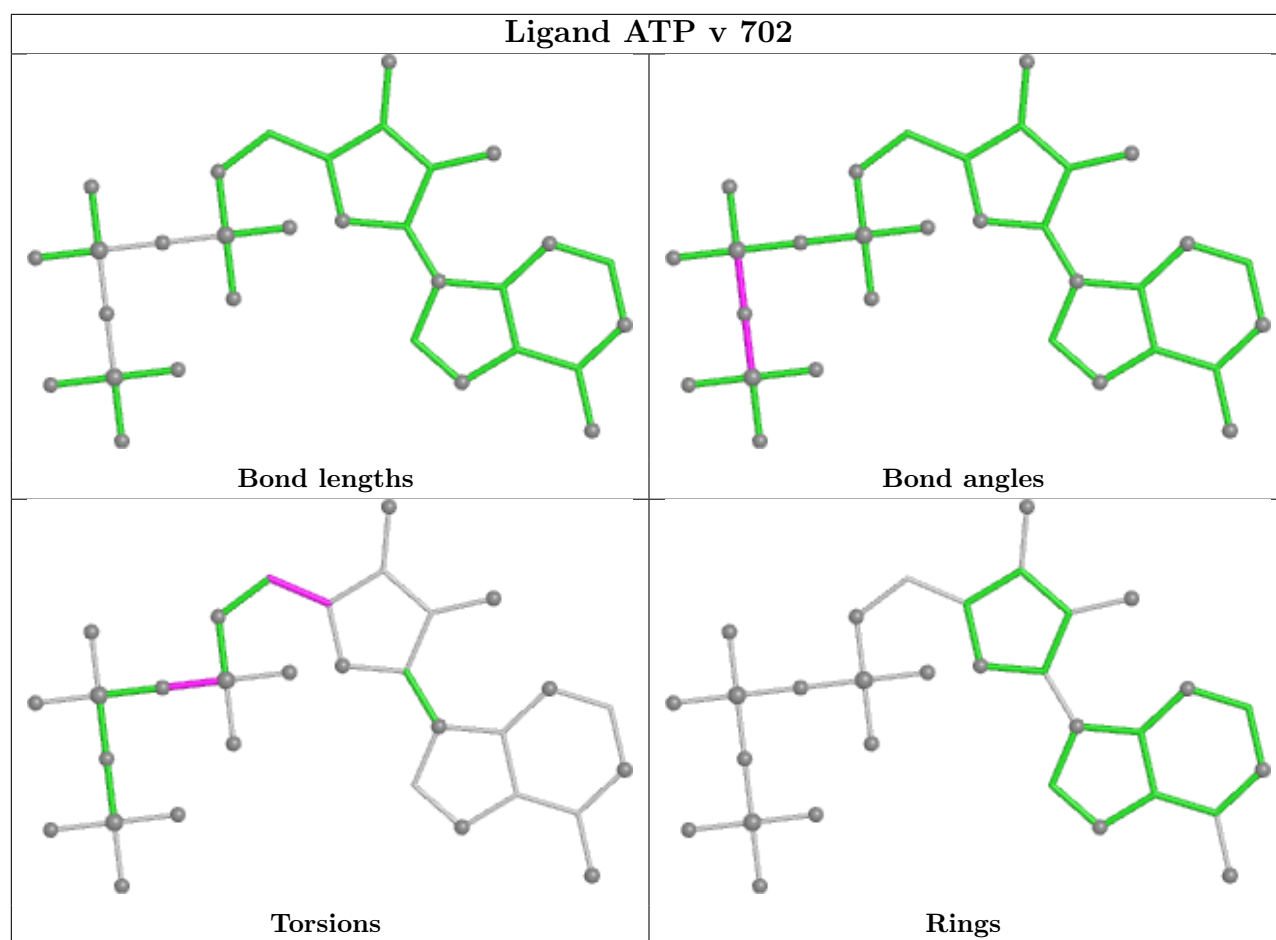
Mol	Chain	Res	Type	Clashes	Symm-Clashes
52	C	2201	ADP	1	0
51	B	1501	GTP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









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.

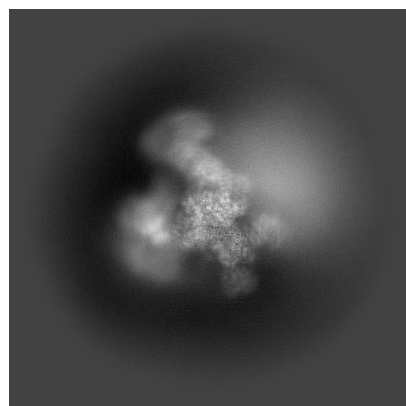
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-67250. These allow visual inspection of the internal detail of the map and identification of artifacts.

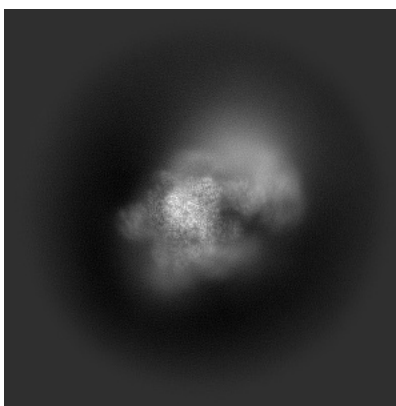
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

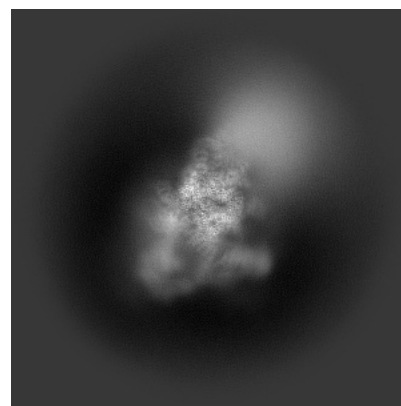
6.1.1 Primary map



X

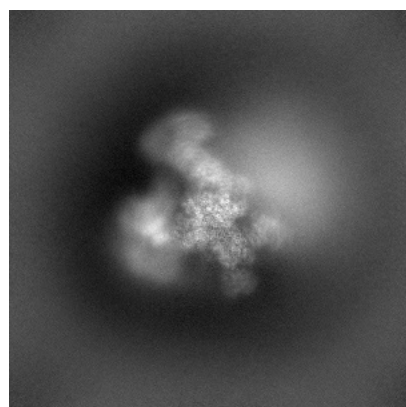


Y

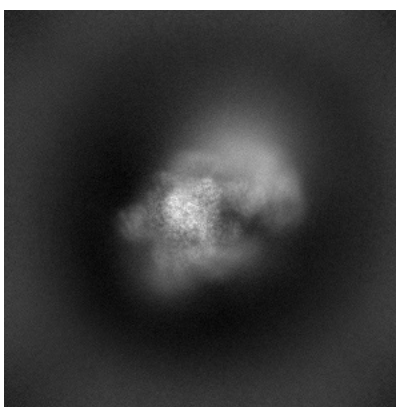


Z

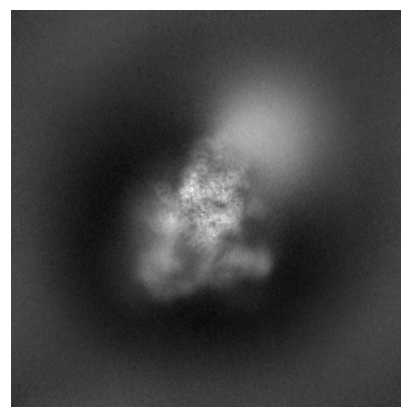
6.1.2 Raw map



X



Y

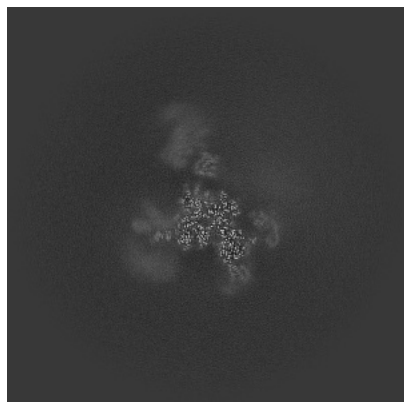


Z

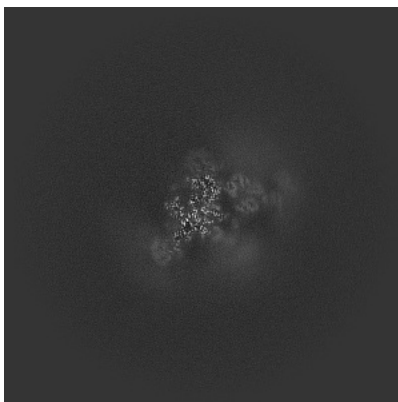
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

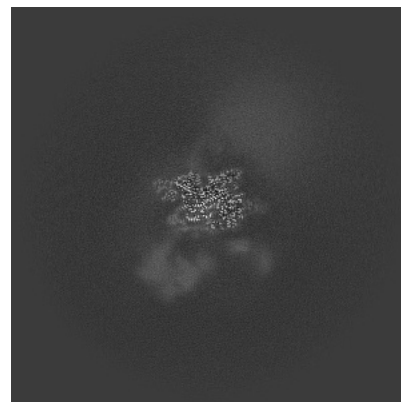
6.2.1 Primary map



X Index: 320

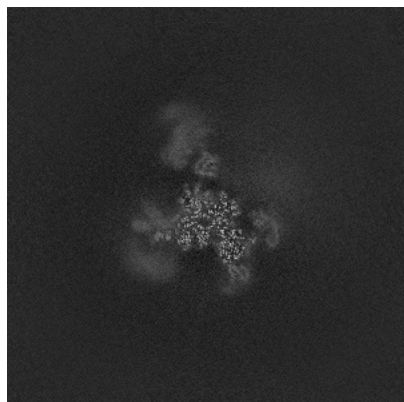


Y Index: 320

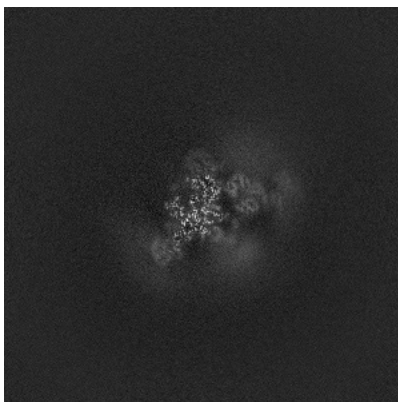


Z Index: 320

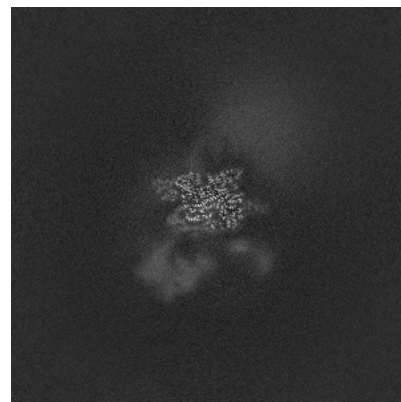
6.2.2 Raw map



X Index: 320



Y Index: 320



Z Index: 320

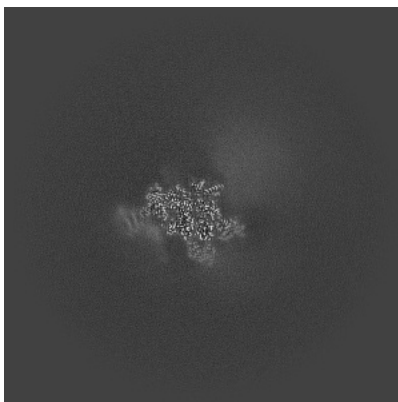
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

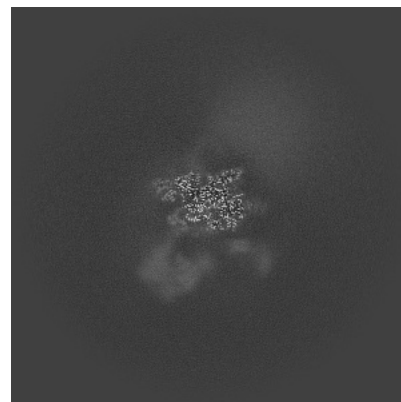
6.3.1 Primary map



X Index: 308



Y Index: 350

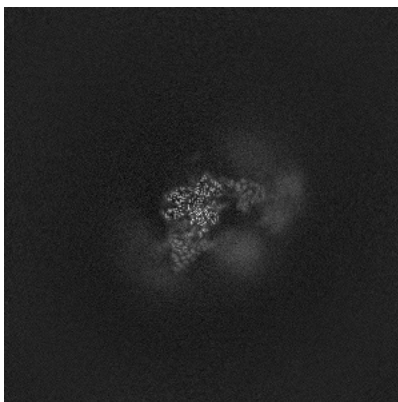


Z Index: 321

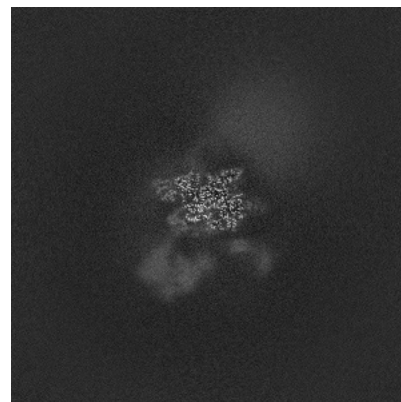
6.3.2 Raw map



X Index: 308



Y Index: 302

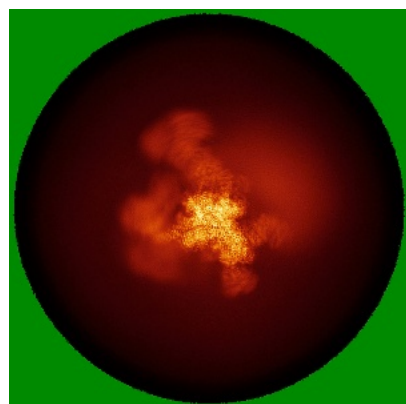


Z Index: 321

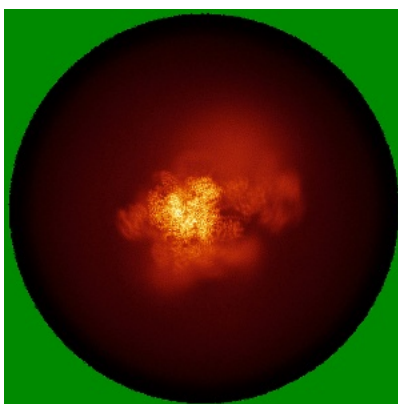
The images above show the largest variance slices of the map in three orthogonal directions.

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

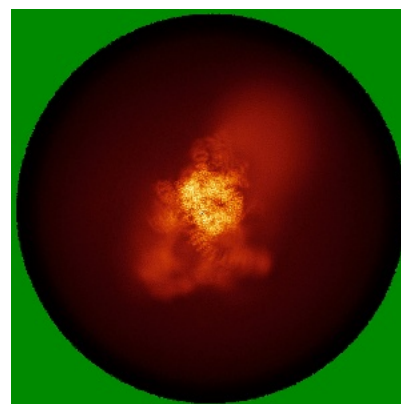
6.4.1 Primary map



X

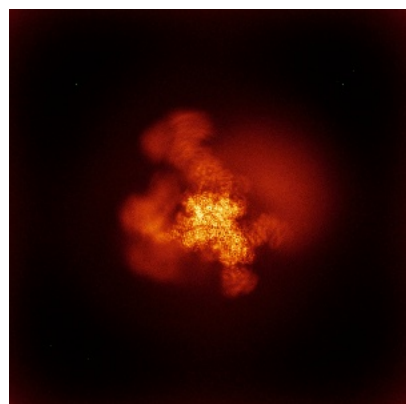


Y

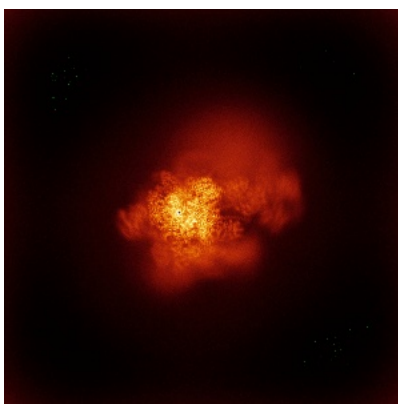


Z

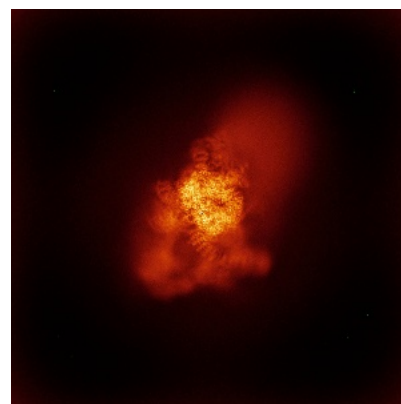
6.4.2 Raw map



X



Y

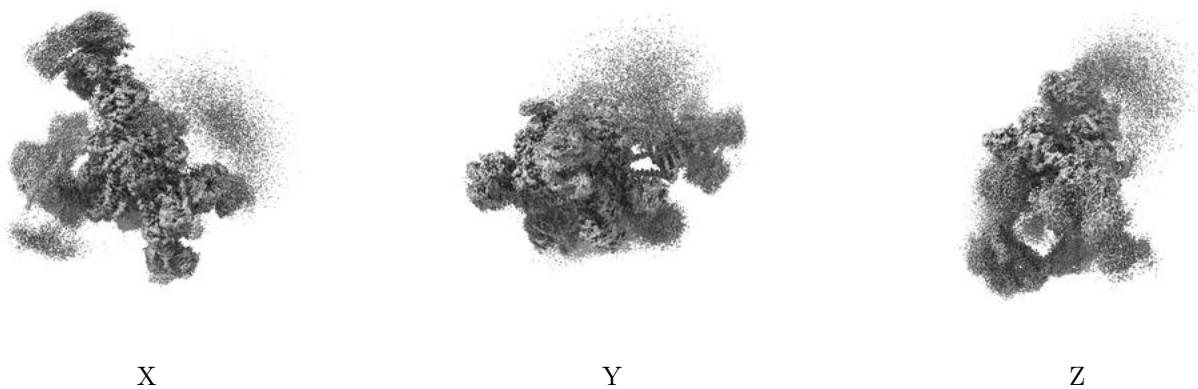


Z

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

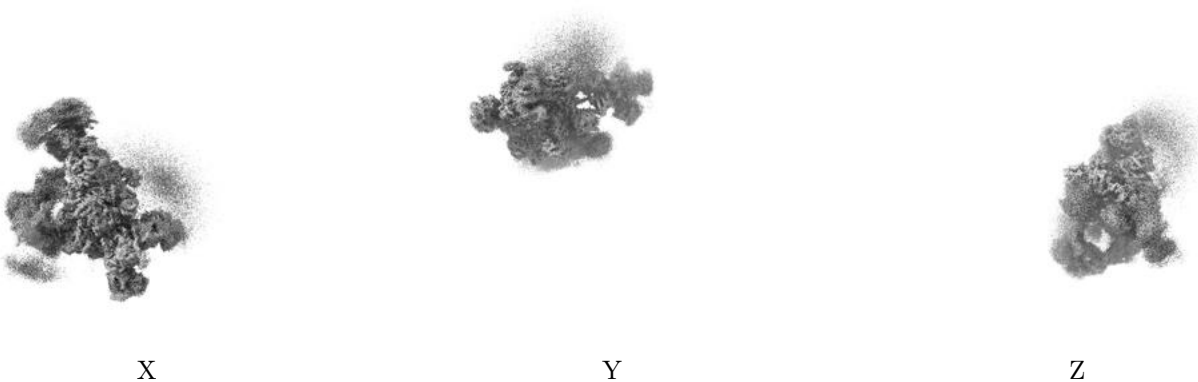
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

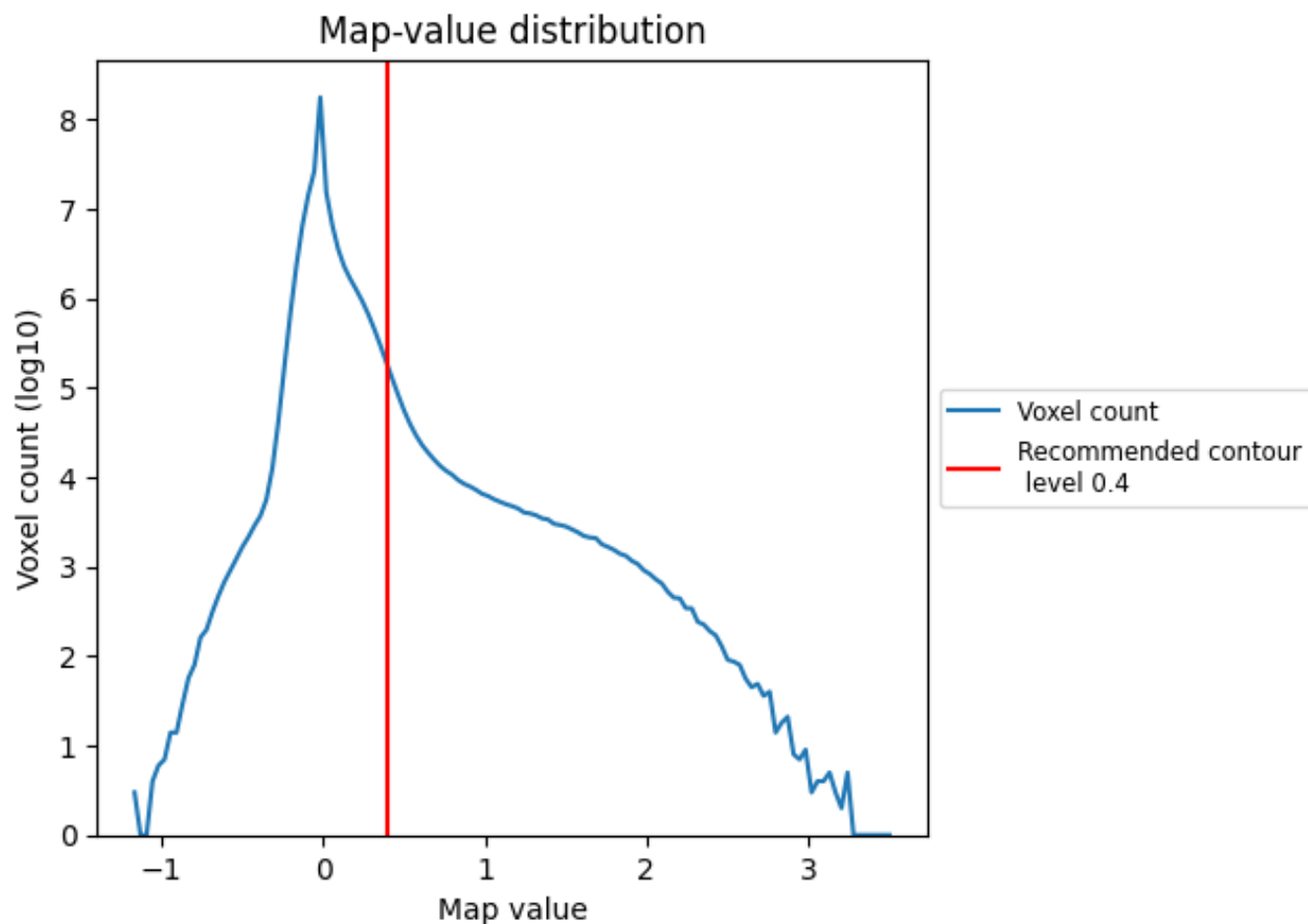
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

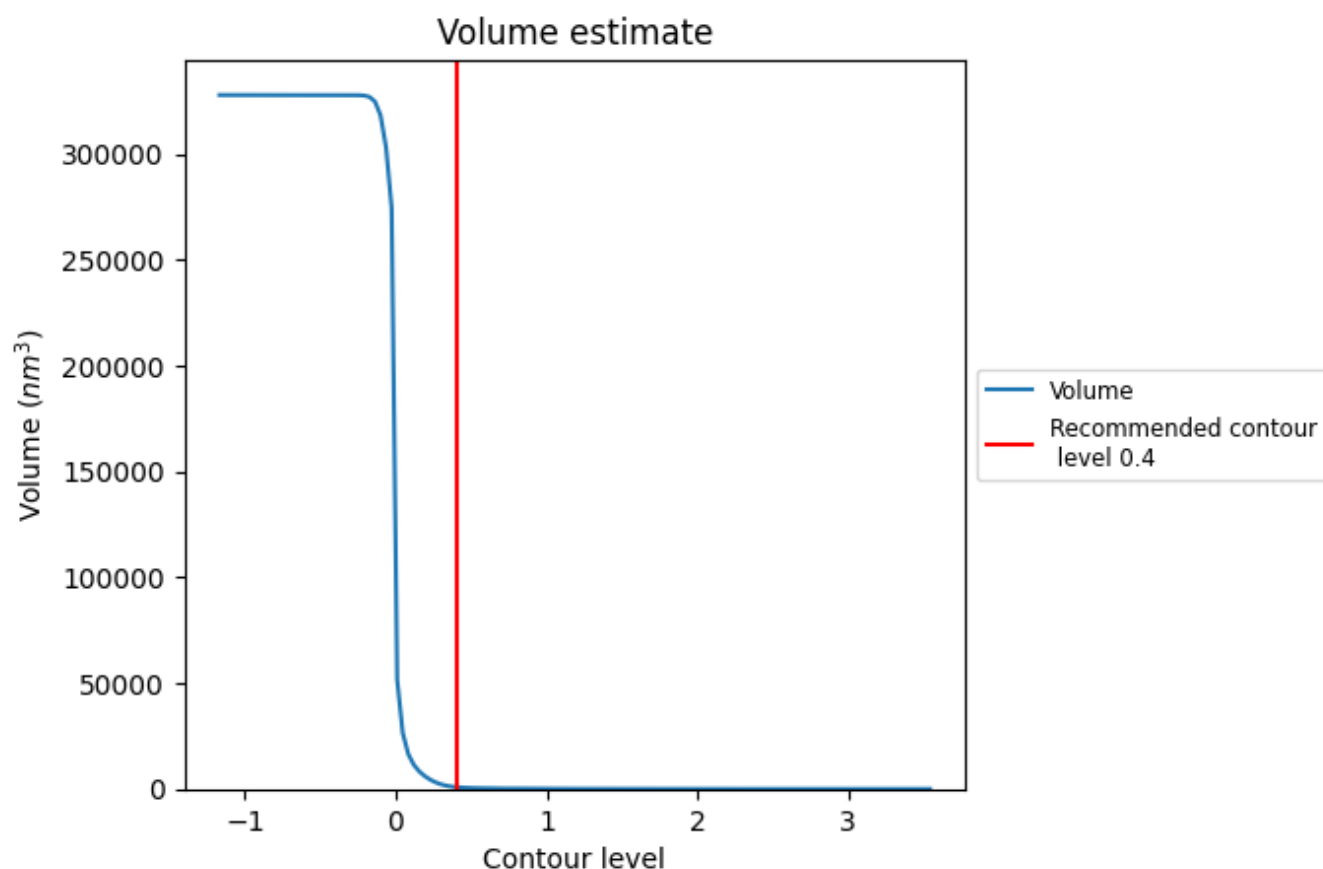
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

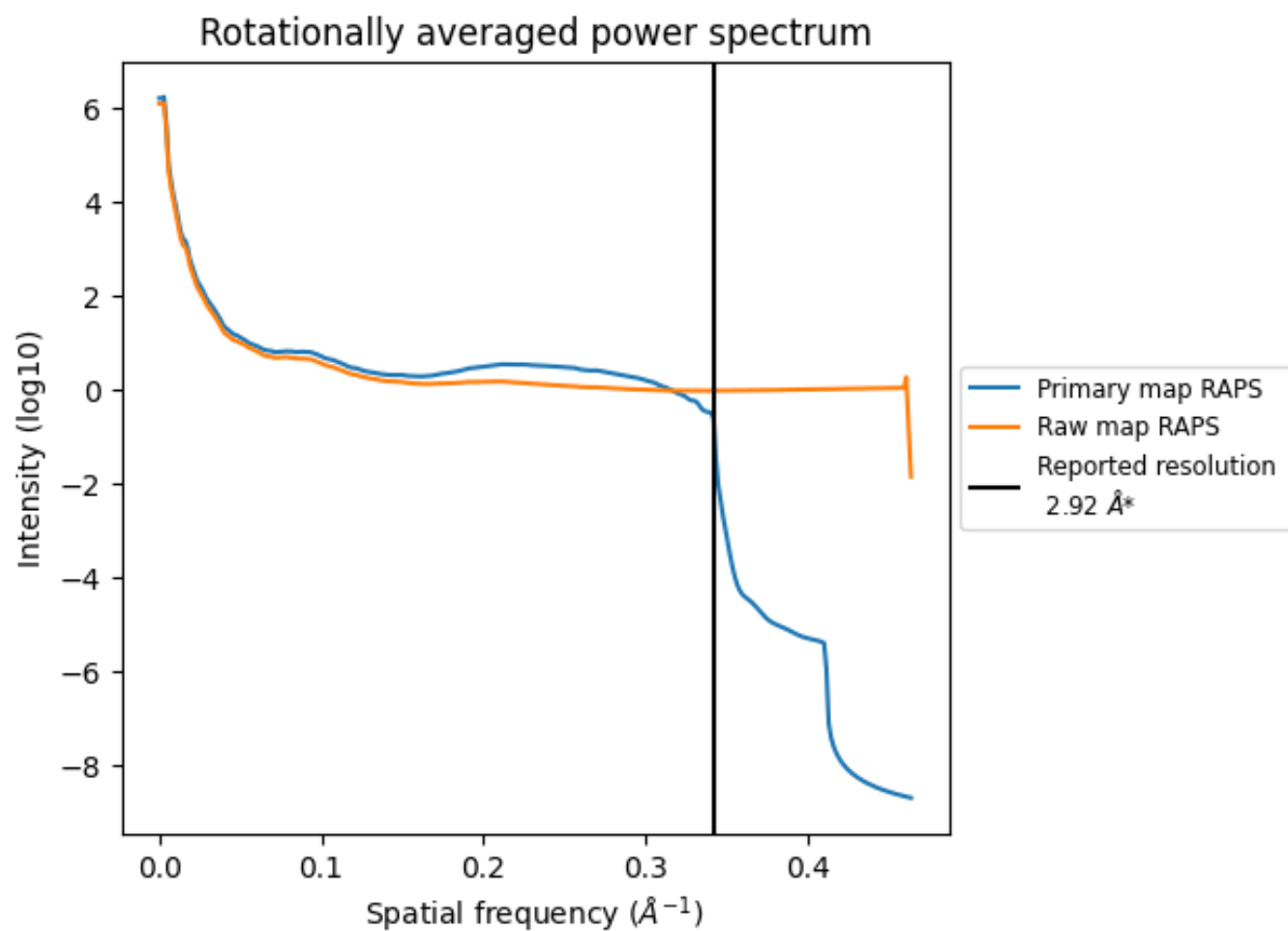
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 875 nm^3 ; this corresponds to an approximate mass of 791 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

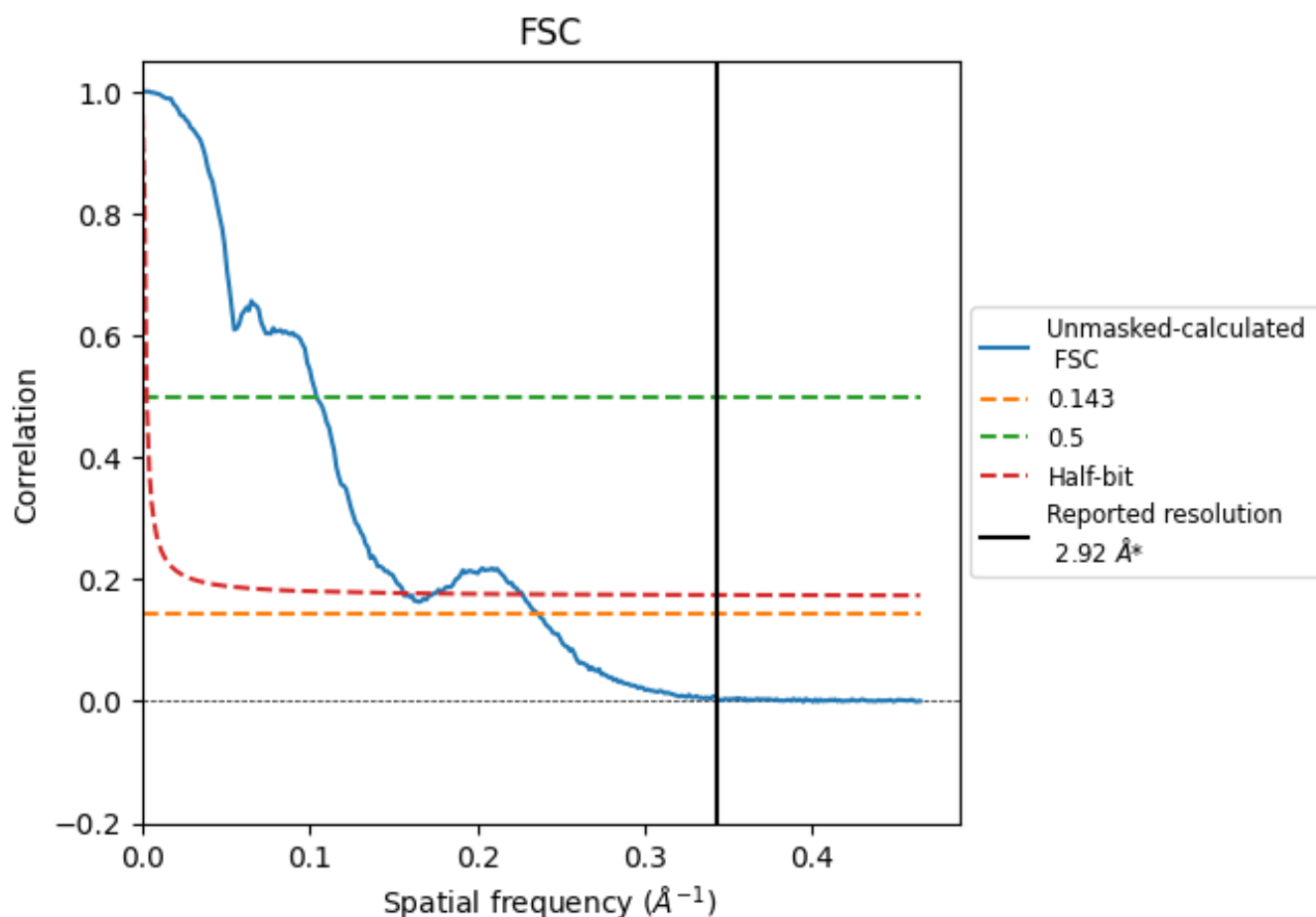


*Reported resolution corresponds to spatial frequency of 0.342 Å⁻¹

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 0.342 Å⁻¹

8.2 Resolution estimates [i](#)

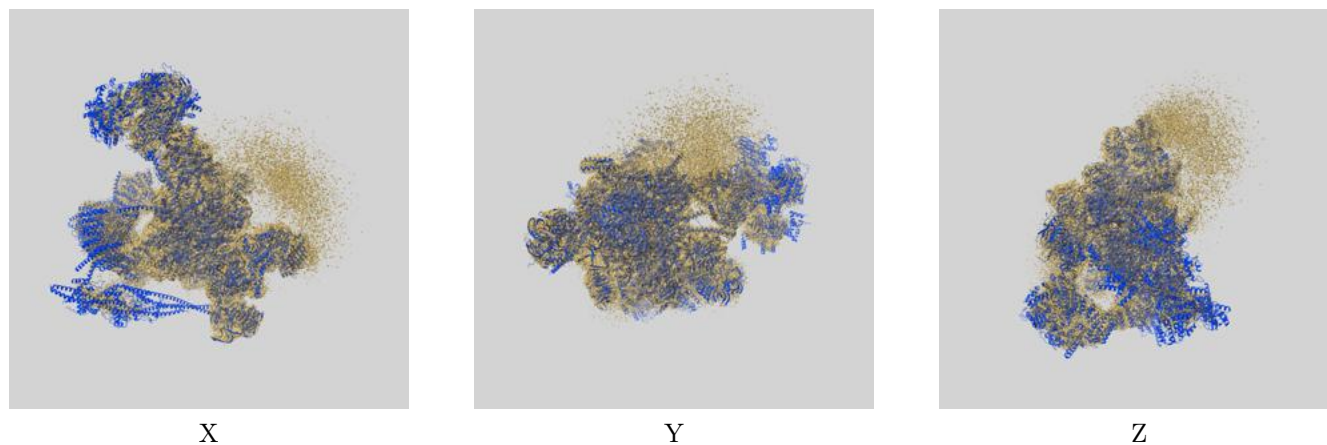
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.92	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.23	9.61	6.41

*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 4.23 differs from the reported value 2.92 by more than 10 %

9 Map-model fit [i](#)

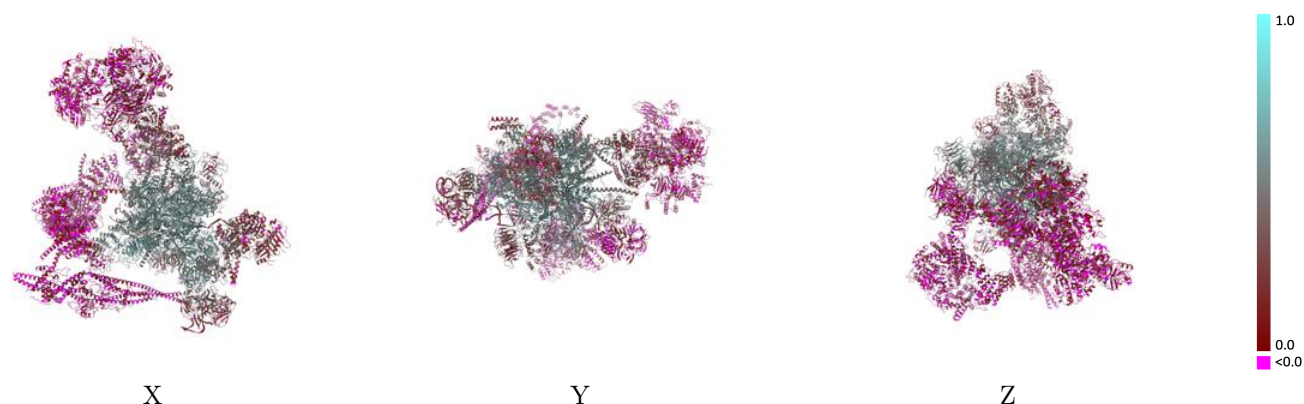
This section contains information regarding the fit between EMDB map EMD-67250 and PDB model 9XTT. Per-residue inclusion information can be found in section [3](#) on page [17](#).

9.1 Map-model overlay [i](#)



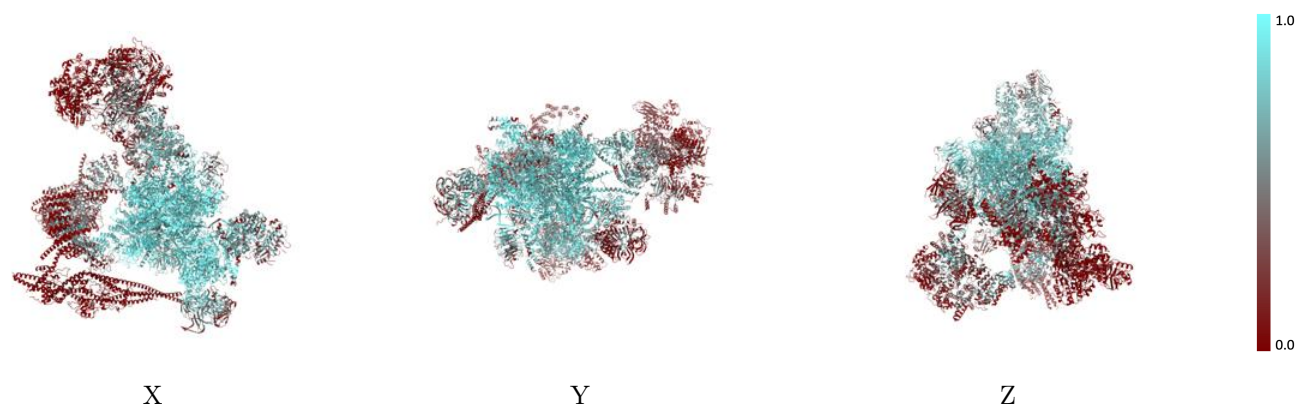
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



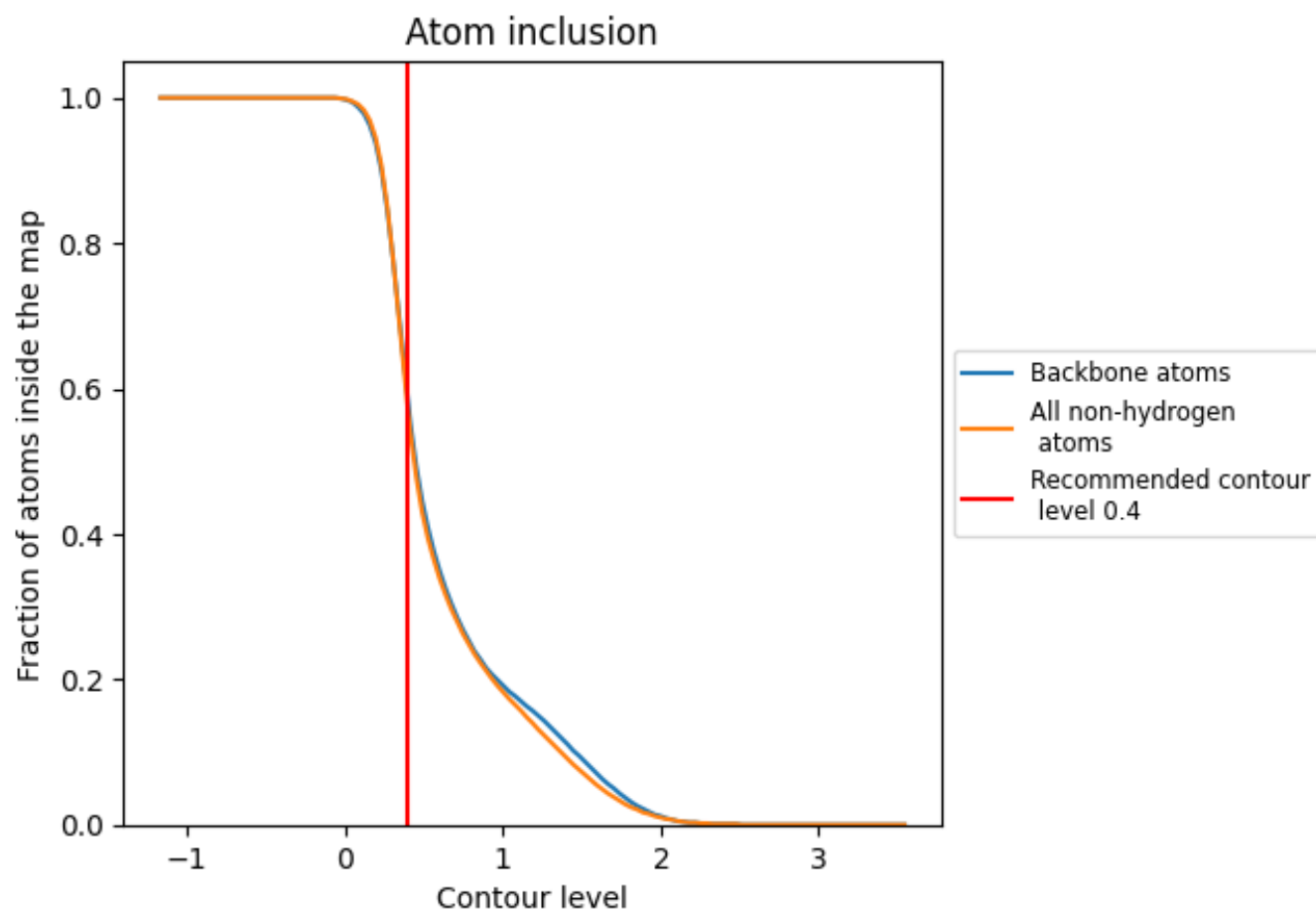
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.4).

9.4 Atom inclusion [i](#)



At the recommended contour level, 58% of all backbone atoms, 57% 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 (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5660	 0.3100
0	 0.7900	 0.4030
1	 0.9480	 0.4900
2	 0.8230	 0.4110
4	 0.2710	 0.0800
5	 0.8320	 0.3970
6	 0.9930	 0.5380
A	 0.8660	 0.5110
B	 0.9310	 0.5470
C	 0.1100	 0.0790
D	 0.5700	 0.3140
E	 0.4680	 0.2950
F	 0.4820	 0.1080
G	 0.5650	 0.2900
H	 0.1100	 0.0020
I	 0.6520	 0.3340
J	 0.7720	 0.4710
K	 0.8570	 0.5320
L	 0.9210	 0.4650
M	 0.7770	 0.3190
N	 0.7900	 0.5250
O	 0.1470	 0.1000
P	 0.5660	 0.0740
Q	 0.2040	 0.0650
R	 0.7570	 0.4610
S	 0.8200	 0.5280
T	 0.6350	 0.3200
U	 0.5680	 0.3300
V	 0.8130	 0.4380
X	 0.5630	 0.3670
X1	 0.1400	 0.1190
X2	 0.2110	 0.0290
X3	 0.3710	 0.1050
Y	 0.7950	 0.4710
Z	 0.8180	 0.4840



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Chain	Atom inclusion	Q-score
a	 0.6640	 0.3220
b	 0.6090	 0.2260
c	 0.4180	 0.1710
d	 0.7570	 0.4380
e	 0.3780	 0.2700
f	 0.3520	 0.2090
g	 0.5340	 0.3730
h	 0.2030	 0.0840
i	 0.1020	 0.0320
j	 0.1110	 0.0620
k	 0.1960	 0.0700
l	 0.1710	 0.0530
m	 0.1400	 0.0950
n	 0.1590	 0.0440
q	 0.0570	 0.0630
r	 0.0280	 0.0450
s	 0.0150	 0.0580
t	 0.0150	 0.0660
u	 0.0140	 0.0630
v	 0.6840	 0.3180
w	 0.4430	 0.2120
x	 0.3900	 0.2310
z	 0.8080	 0.5120