Full wwPDB EM Validation Report

Jan 12, 2026 – 09:56 pm GMT

PDB ID	:	8PJ3 / pdb_00008pj3
EMDB ID	:	EMD-17698
Title	:	Structure of human 48S translation initiation complex upon transfer of initiator tRNA to eIF5B (48S-3)
Authors	:	Petrychenko, V.; Yi, S.-H.; Liedtke, D.; Peng, B.Z.; Rodnina, M.V.; Fischer, N.
Deposited on	:	2023-06-22
Resolution	:	3.70 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 (i) 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 (1)) were used in the production of this report:

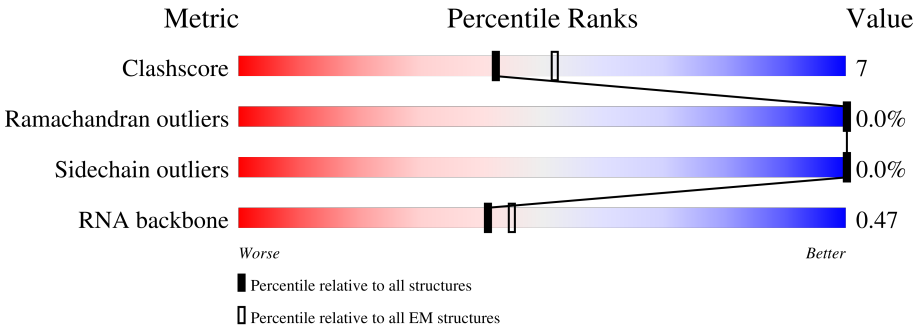
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

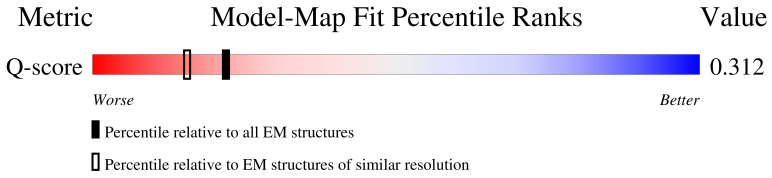
1 Overall quality at a glance

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

The reported resolution of this entry is 3.70 Å.

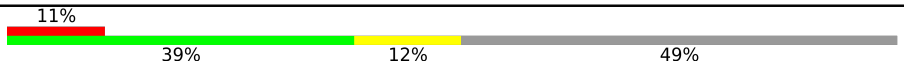
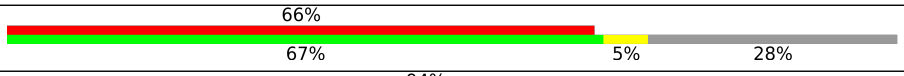
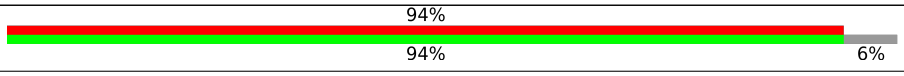
Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	11569 (3.20 - 4.20)

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

Mol	Chain	Length	Quality of chain
1	0	1220	
2	1	814	
3	2	325	

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Mol	Chain	Length	Quality of chain
4	3	218	82% 96%
5	4	357	43% 71% 28%
6	5	564	71% 73% 20% 8%
7	6	374	59% 87% 10%
8	7	255	11% 5% 16% 78%
9	8	352	59% 87% 10%
10	9	25	12% 72% 24%
11	A	1869	54% 32% 8% 6%
12	B	158	78% 11% 10%
13	C	263	85% 12%
14	D	194	75% 16% 9%
15	E	143	88% 10%
16	F	133	39% 5% 56%
17	G	194	80% 11% 9%
18	H	84	75% 21%
19	I	151	85% 15%
20	J	130	90% 9%
21	K	83	81% 17%
22	L	293	63% 12% 25%
23	M	135	8% 85% 12%
24	N	295	56% 14% 30%
25	O	264	60% 20% 20%
26	P	151	52% 36% 12%
27	Q	115	64% 22% 14%
28	R	208	88% 7% 5%

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Mol	Chain	Length	Quality of chain
29	S	249	78% 14% 8%
30	T	133	73% 20% 6%
31	V	204	77% 16% 7%
32	Y	146	79% 17%
33	Z	243	81% 12% 7%
34	a	165	52% 8% 40%
35	b	145	70% 20% 10%
36	c	317	5% 86% 12%
37	d	145	82% 16%
38	e	125	8% 55% 10% 35%
39	f	152	84% 14%
40	h	119	74% 13% 13%
41	i	56	75% 14% 11%
42	k	156	24% 19% 56%
43	m	132	19% 72% 20% 8%
44	n	69	10% 77% 16% 7%
45	o	320	12% 22% 76%
46	q	144	6% 72% 9% 19%
47	r	315	38% 80% 14% 6%
48	t	472	93% 83% 14%
49	u	1382	19% 40% 11% 49%
50	v	445	36% 76% 15% 9%
51	w	75	9% 55% 43%
52	x	548	25% 68% 9% 23%
53	y	913	19% 56% 15% 28%

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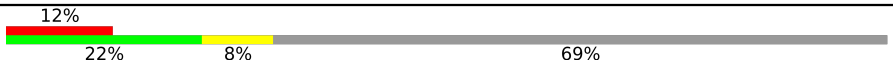
Mol	Chain	Length	Quality of chain
54	z	430	

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 123641 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Eukaryotic translation initiation factor 5B.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	0	621	Total	C	N	O	S	0	0
			4920	3135	850	913	22		

- Molecule 2 is a protein called Eukaryotic translation initiation factor 3 subunit B.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	1	588	Total	C	N	O	S	0	0
			3258	1986	633	634	5		

- Molecule 3 is a protein called Eukaryotic translation initiation factor 3 subunit I.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	2	304	Total	C	N	O	0	0
			1493	885	304	304		

- Molecule 4 is a protein called Eukaryotic translation initiation factor 3 subunit K.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	3	213	Total	C	N	O	0	0
			1057	631	213	213		

- Molecule 5 is a protein called Eukaryotic translation initiation factor 3 subunit F.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	4	257	Total	C	N	O	0	0
			1272	757	257	258		

- Molecule 6 is a protein called Eukaryotic translation initiation factor 3 subunit L.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	5	520	Total	C	N	O	S	0	0
			4347	2814	721	793	19		

- Molecule 7 is a protein called Eukaryotic translation initiation factor 3 subunit M.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	6	362	Total	C	N	O	S	0	0
			2196	1348	414	427	7		

- Molecule 8 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	7	57	Total	C	N	O	P	0	0
			1218	547	231	383	57		

- Molecule 9 is a protein called Eukaryotic translation initiation factor 3 subunit H.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	8	317	Total	C	N	O	0	0
			1574	937	318	319		

- Molecule 10 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	9	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 11 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	A	1754	Total	C	N	O	P	0	0
			37429	16718	6714	12244	1753		

- Molecule 12 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	B	142	Total	C	N	O	S	0	0
			1166	743	218	199	6		

- Molecule 13 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	C	256	Total	C	N	O	S	0	0
			2035	1302	378	347	8		

- Molecule 14 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	D	177	Total	C	N	O	S	0	0
			1477	941	295	239	2		

- Molecule 15 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	E	140	Total	C	N	O	S	0	0
			1087	687	215	182	3		

- Molecule 16 is a protein called Small ribosomal subunit protein eS30.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	F	59	Total	C	N	O	S	0	0
			461	285	100	75	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	125	PRO	LYS	conflict	UNP P62861

- Molecule 17 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	G	177	Total	C	N	O	S	0	0
			1430	917	260	252	1		

- Molecule 18 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	H	81	Total	C	N	O	S	0	0
			631	397	116	111	7		

- Molecule 19 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	I	150	Total	C	N	O	S	0	0
			1208	773	229	205	1		

- Molecule 20 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	J	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 21 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	K	81	Total	C	N	O	S	0	0
			617	380	114	118	5		

- Molecule 22 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	L	220	Total	C	N	O	S	0	0
			1707	1104	292	301	10		

- Molecule 23 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	M	131	Total	C	N	O	S	0	0
			1064	668	198	194	4		

- Molecule 24 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	N	207	Total	C	N	O	S	0	0
			1633	1040	288	297	8		

- Molecule 25 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	O	211	Total	C	N	O	S	0	0
			1715	1088	307	306	14		

- Molecule 26 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	P	133	Total	C	N	O	S	0	0
			997	610	196	185	6		

- Molecule 27 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Q	99	Total	C	N	O	S	0	0
			792	492	165	130	5		

- Molecule 28 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	R	198	Total	C	N	O	S	0	0
			1627	1021	322	279	5		

- Molecule 29 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	S	230	Total	C	N	O	S	0	0
			1862	1164	371	320	7		

- Molecule 30 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	T	125	Total	C	N	O	S	0	0
			1015	642	199	169	5		

- Molecule 31 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	V	189	Total	C	N	O	S	0	0
			1495	934	284	270	7		

- Molecule 32 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Y	141	Total	C	N	O	S	0	0
			1124	715	212	194	3		

- Molecule 33 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	Z	227	Total	C	N	O	S	0	0
			1765	1125	317	315	8		

- Molecule 34 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	a	99	Total	C	N	O	S	0	0
			834	544	149	135	6		

- Molecule 35 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	b	131	Total	C	N	O	S	0	0
			1072	682	201	182	7		

- Molecule 36 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	c	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 37 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	d	142	Total	C	N	O	S	0	0
			1105	692	213	197	3		

- Molecule 38 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	e	81	Total	C	N	O	S	0	0
			649	420	119	109	1		

- Molecule 39 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	f	149	Total	C	N	O	S	0	0
			1227	770	249	207	1		

- Molecule 40 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	h	103	Total	C	N	O	S	0	0
			817	511	155	147	4		

- Molecule 41 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	i	50	Total	C	N	O	S	0	0
			419	262	85	67	5		

- Molecule 42 is a protein called Ubiquitin.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	k	68	Total	C	N	O	S	0	0
			554	349	103	95	7		

- Molecule 43 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	m	122	Total	C	N	O	S	0	0
			950	596	168	177	9		

- Molecule 44 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	n	64	Total	C	N	O	S	0	0
			506	308	102	94	2		

- Molecule 45 is a protein called Eukaryotic translation initiation factor 3 subunit G.

Mol	Chain	Residues	Atoms				AltConf	Trace
45	o	77	Total	C	N	O	0	0
			616	389	111	116		

- Molecule 46 is a protein called Eukaryotic translation initiation factor 1A, X-chromosomal.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	q	117	Total	C	N	O	S	0	0
			943	585	180	174	4		

- Molecule 47 is a protein called Eukaryotic translation initiation factor 2 subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	r	296	Total	C	N	O	S	0	0
			2138	1342	384	404	8		

- Molecule 48 is a protein called Eukaryotic translation initiation factor 2 subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	t	455	Total	C	N	O	S	0	0
			3439	2179	599	643	18		

- Molecule 49 is a protein called Eukaryotic translation initiation factor 3 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	u	706	Total	C	N	O	S	1	0
			5383	3379	982	999	23		

- Molecule 50 is a protein called Eukaryotic translation initiation factor 3 subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	v	405	Total	C	N	O	S	0	0
			2740	1720	498	510	12		

- Molecule 51 is a RNA chain called Initiator Met-tRNA-i.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	75	Total	C	N	O	P	0	0
			1604	717	298	515	74		

- Molecule 52 is a protein called Eukaryotic translation initiation factor 3 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	x	423	Total	C	N	O	S	0	0
			2842	1752	523	557	10		

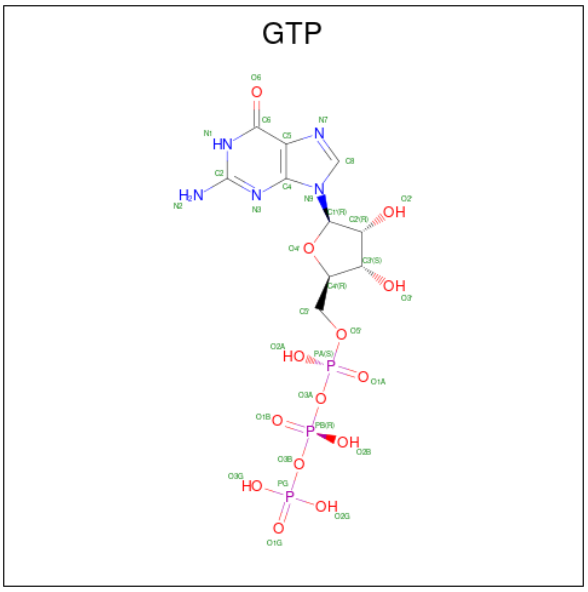
- Molecule 53 is a protein called Eukaryotic translation initiation factor 3 subunit C.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	y	656	Total	C	N	O	S	0	0
			5263	3312	939	977	35		

- Molecule 54 is a protein called Eukaryotic translation initiation factor 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	z	132	Total	C	N	O	S	0	0
			1044	662	184	188	10		

- Molecule 55 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



Mol	Chain	Residues	Atoms					AltConf
55	0	1	Total	C	N	O	P	0
			32	10	5	14	3	

- Molecule 56 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		AltConf
56	0	1	Total	Na	0
			1	1	

- Molecule 57 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
57	0	1	Total	Mg	0
			1	1	
57	A	87	Total	Mg	0
			87	87	
57	f	1	Total	Mg	0
			1	1	

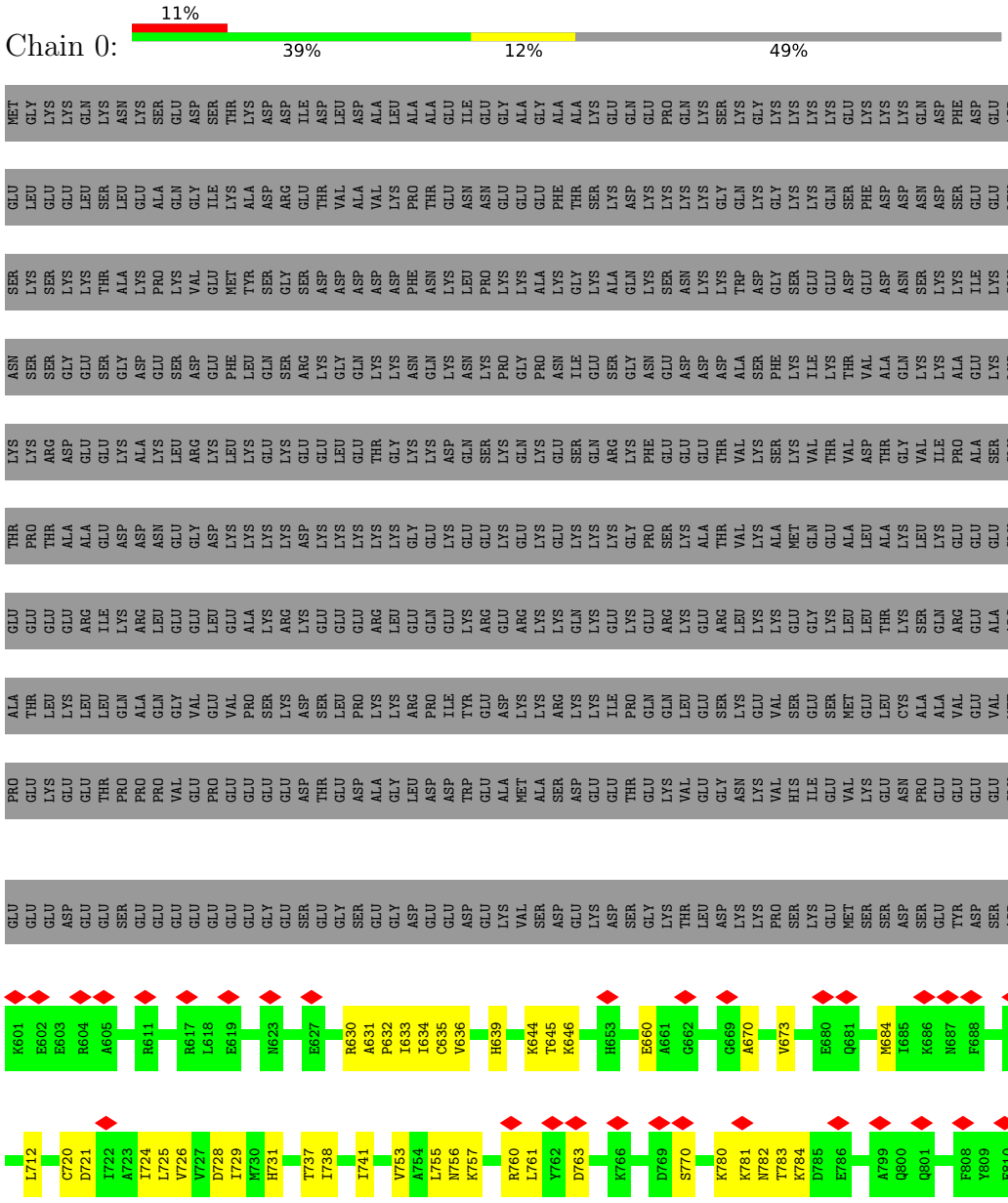
- Molecule 58 is ZINC ION (CCD ID: ZN) (formula: Zn).

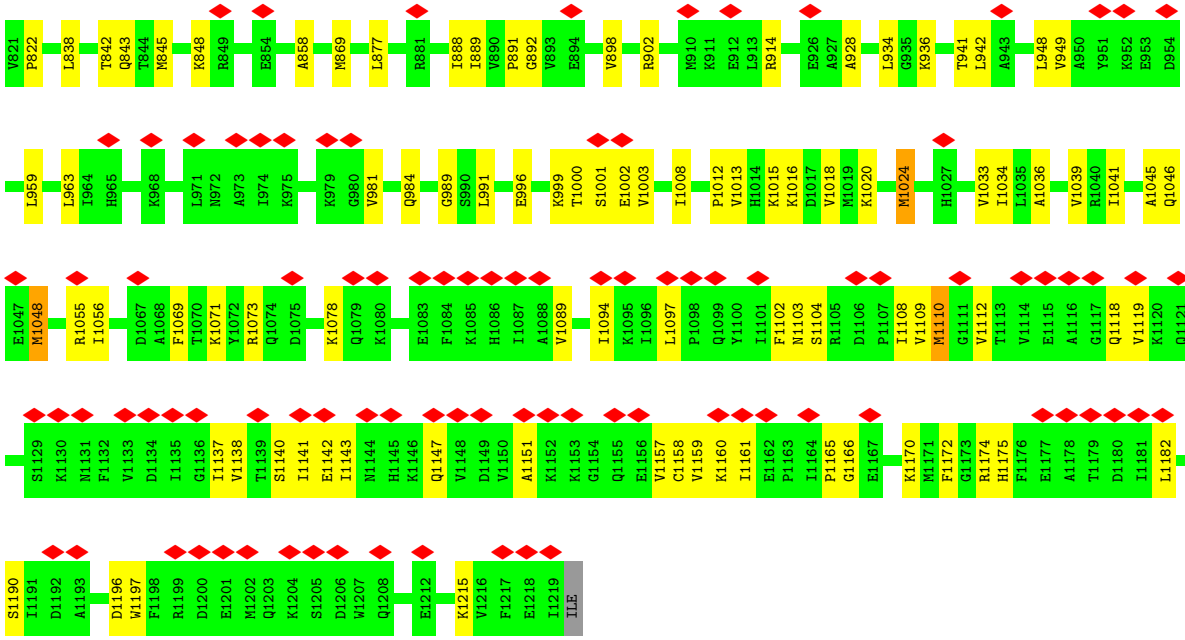
Mol	Chain	Residues	Atoms		AltConf
58	Q	1	Total	Zn	0
			1	1	
58	k	1	Total	Zn	0
			1	1	

3 Residue-property plots (i)

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

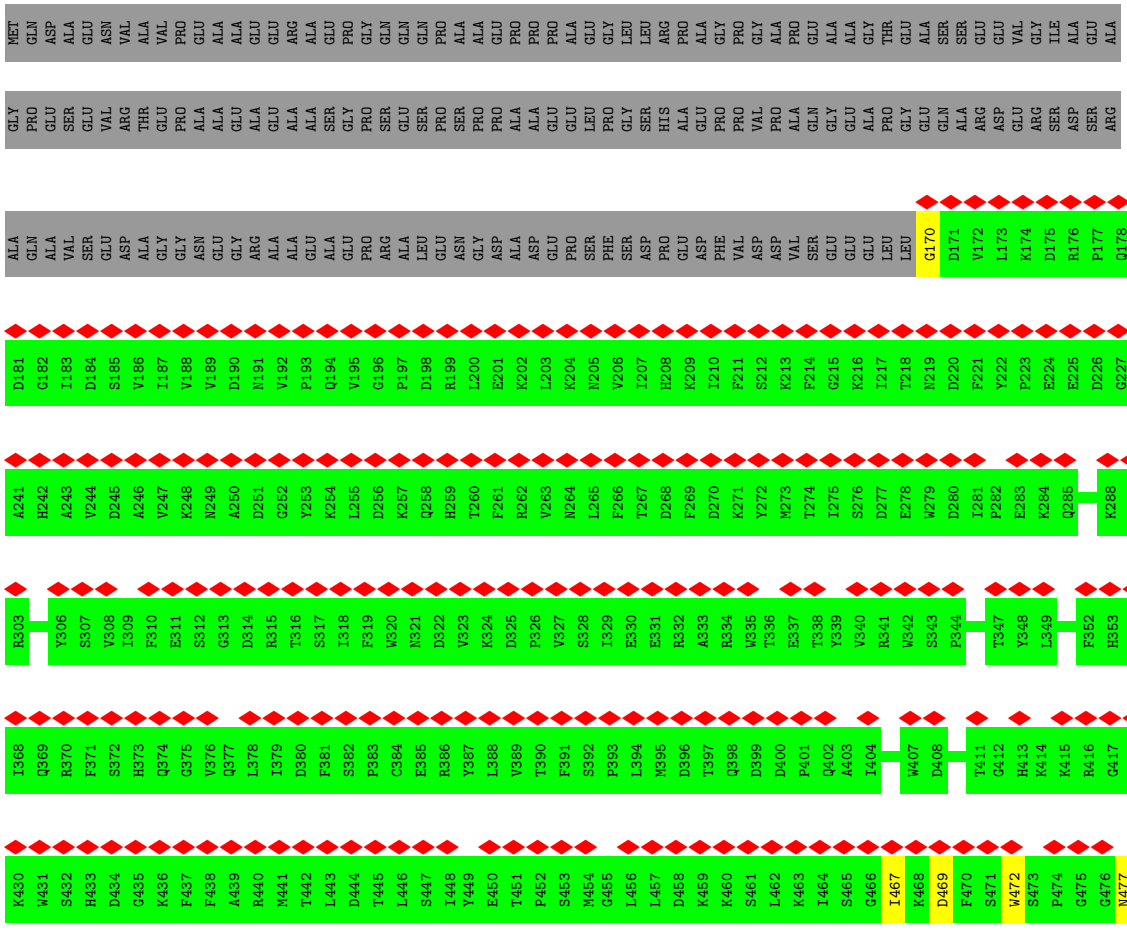
- Molecule 1: Eukaryotic translation initiation factor 5B

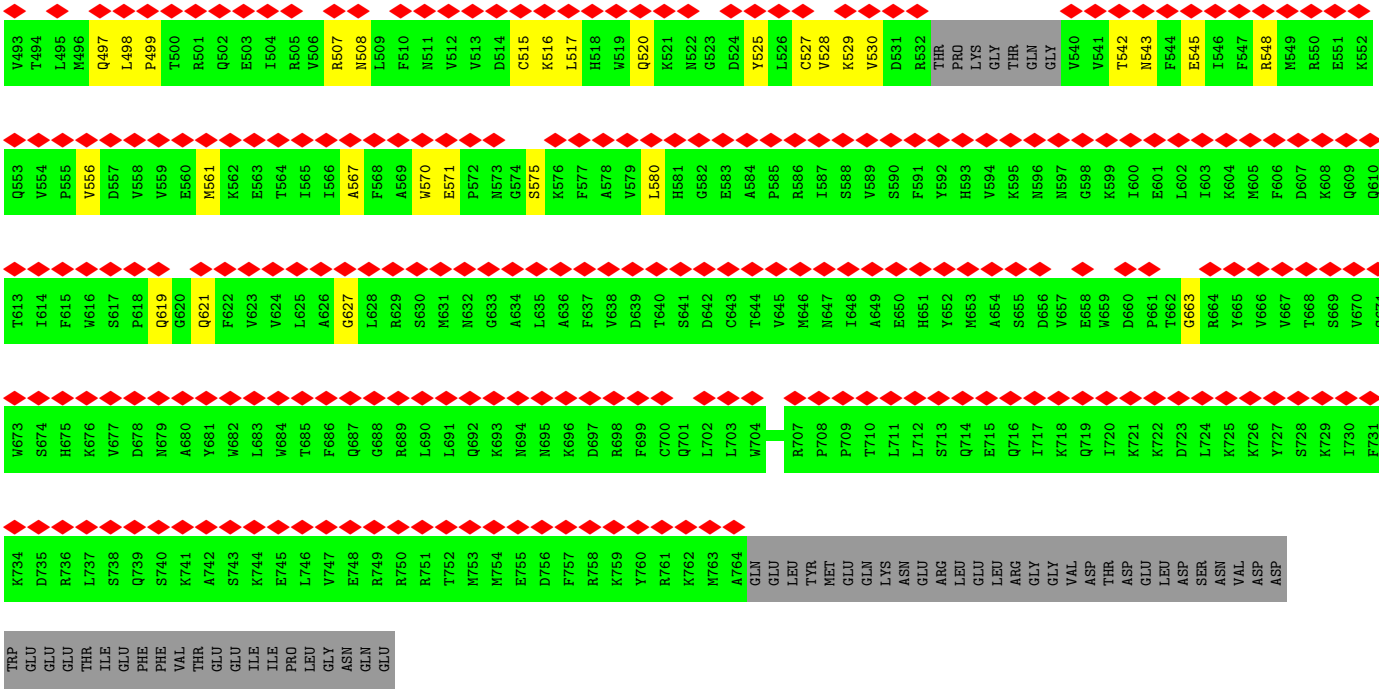




• Molecule 2: Eukaryotic translation initiation factor 3 subunit B

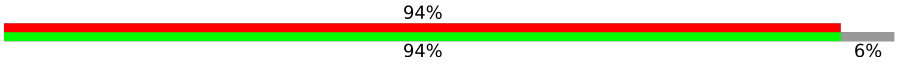
Chain 1:

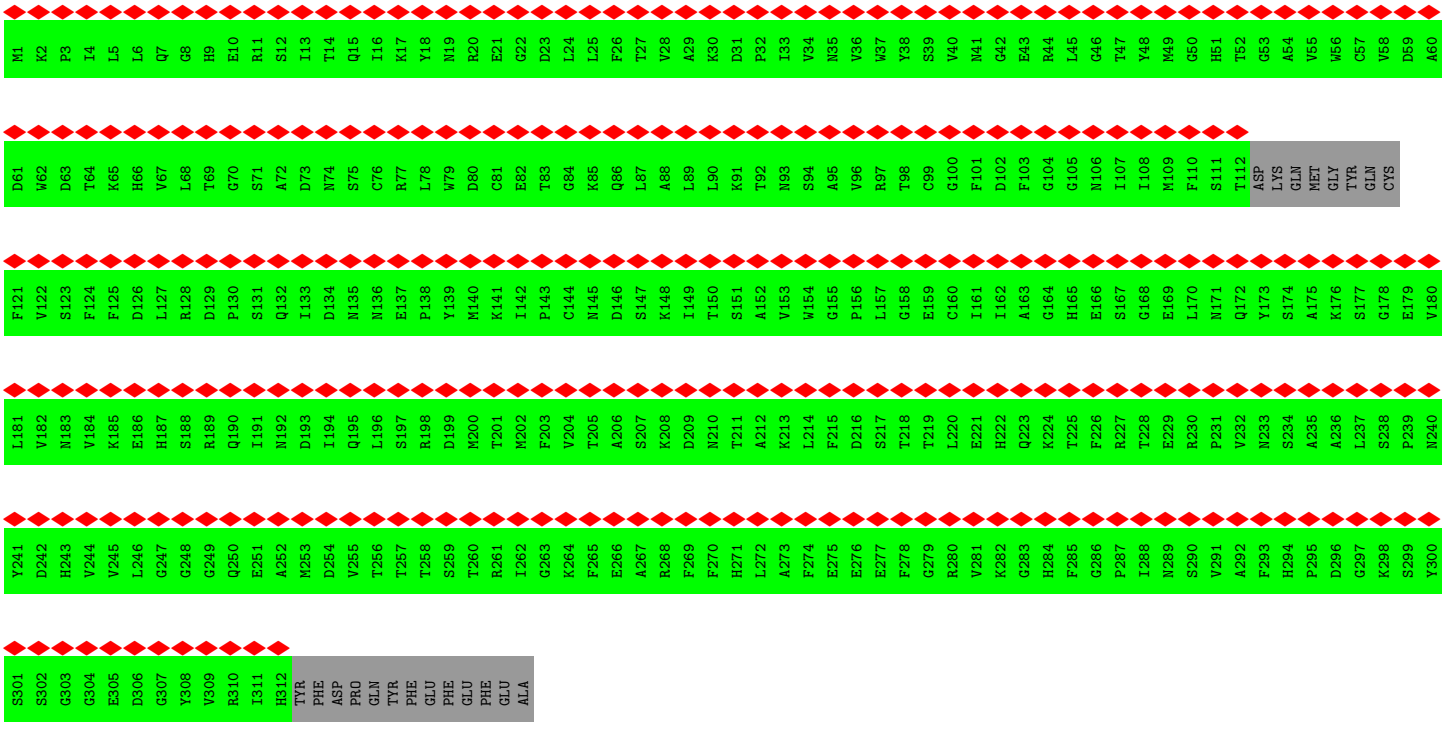




• Molecule 3: Eukaryotic translation initiation factor 3 subunit I

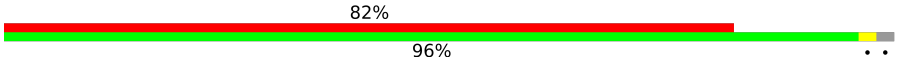
Chain 2:

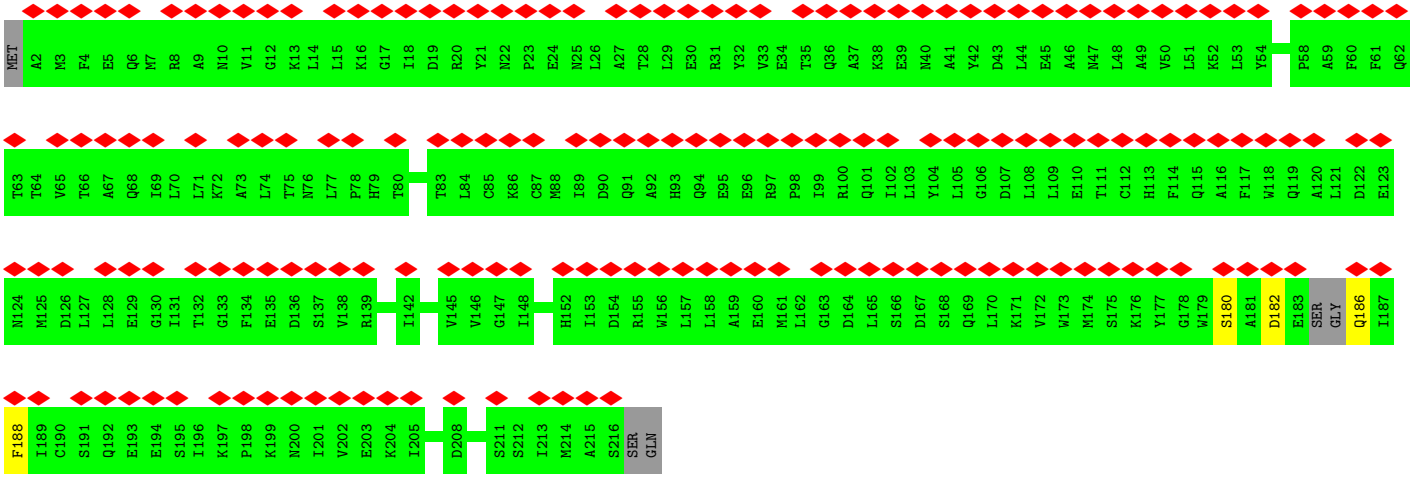




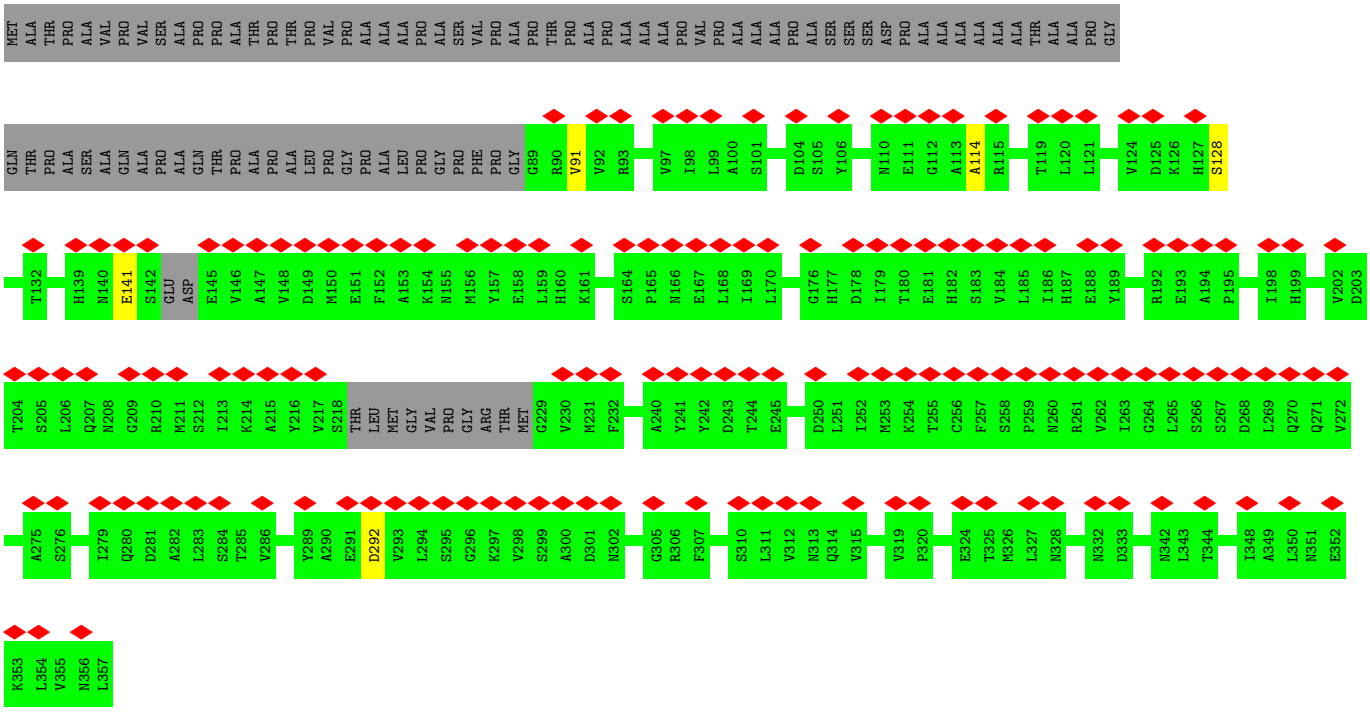
• Molecule 4: Eukaryotic translation initiation factor 3 subunit K

Chain 3:

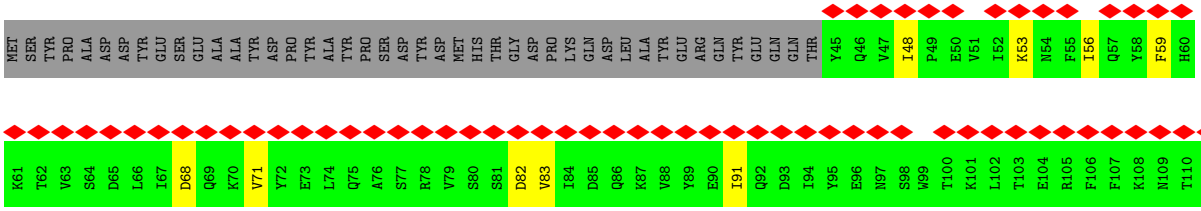


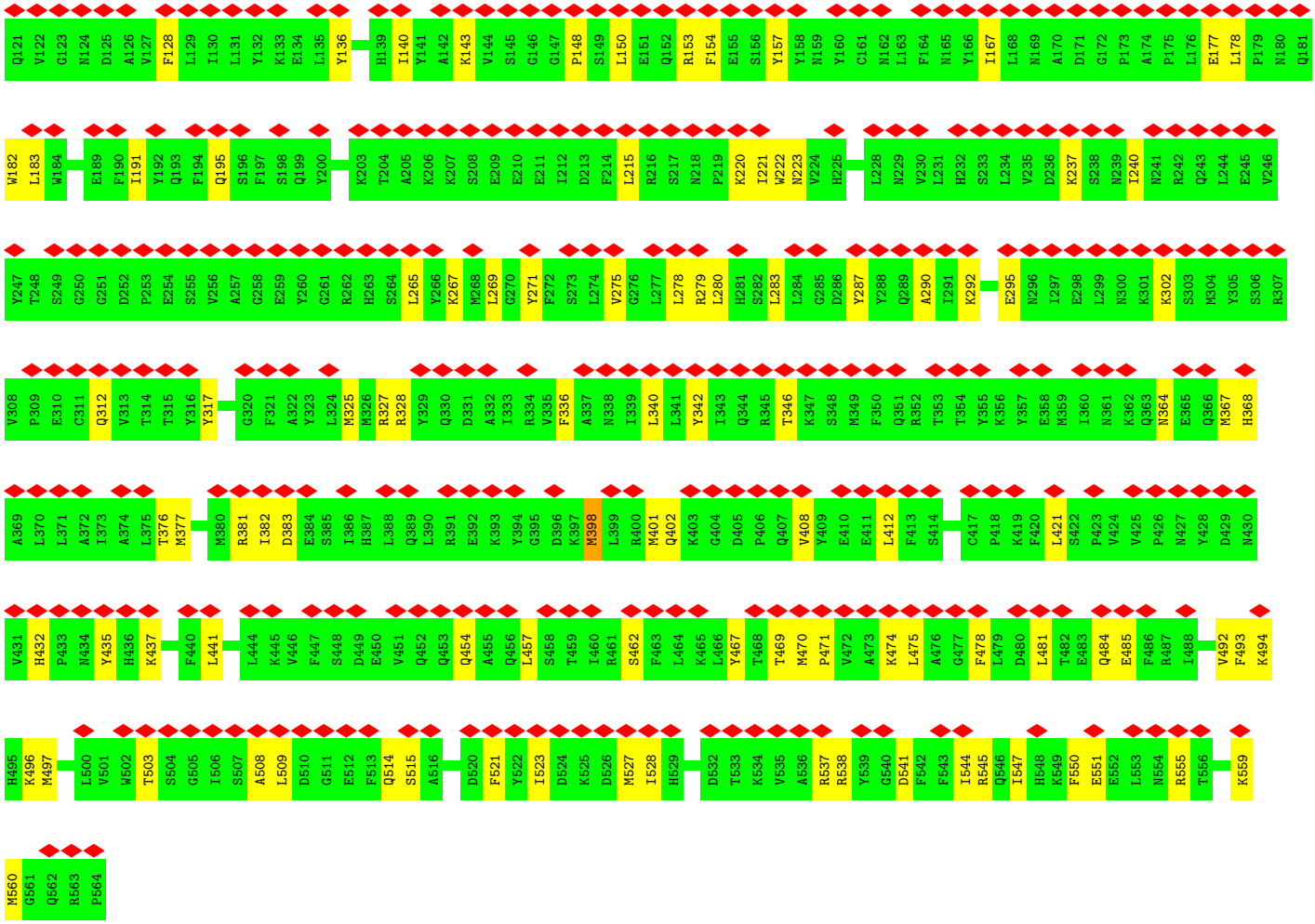


• Molecule 5: Eukaryotic translation initiation factor 3 subunit F



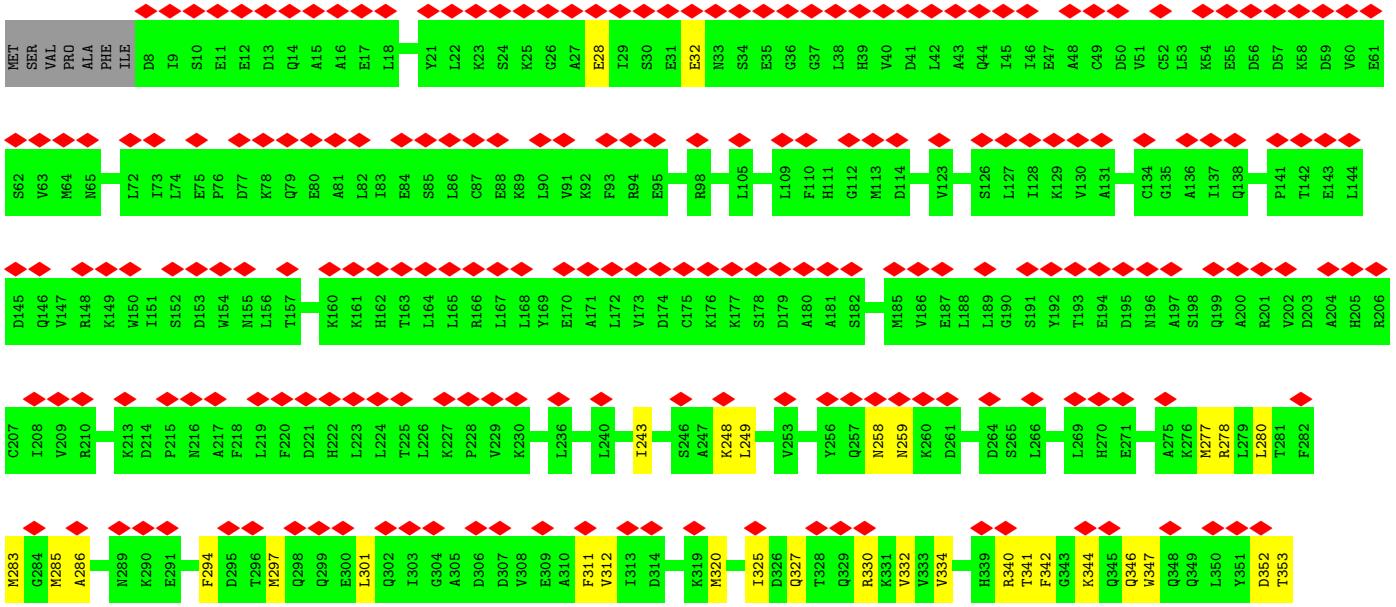
• Molecule 6: Eukaryotic translation initiation factor 3 subunit L

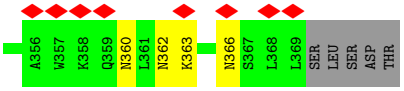




• Molecule 7: Eukaryotic translation initiation factor 3 subunit M

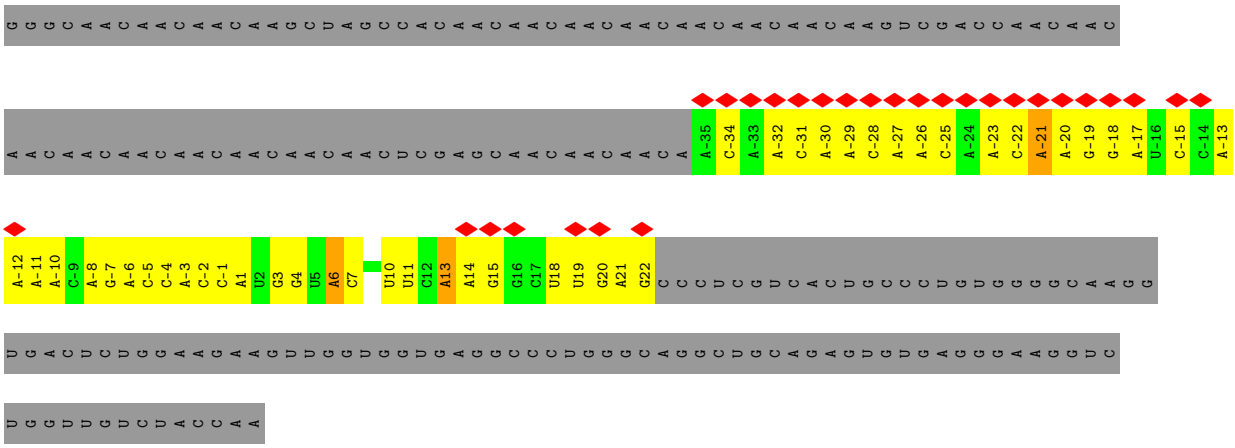
Chain 6:





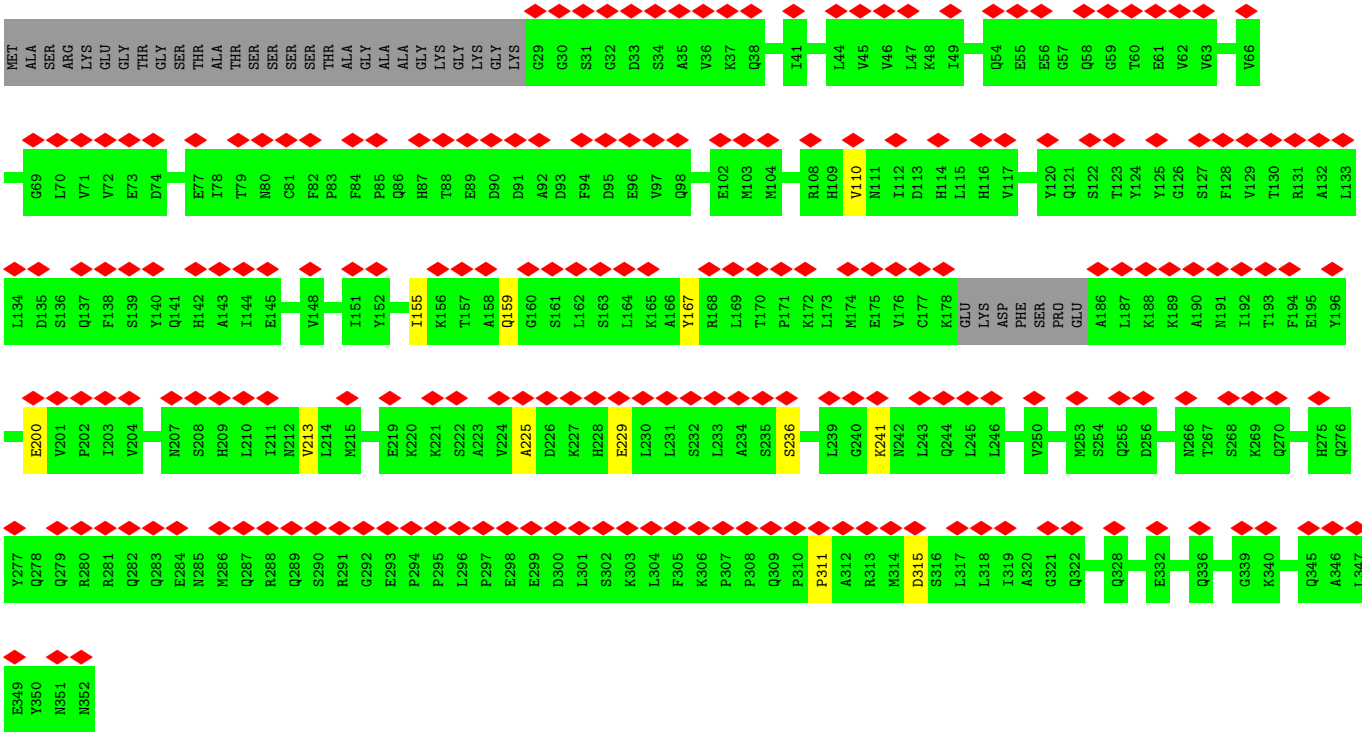
• Molecule 8: mRNA

Chain 7:



• Molecule 9: Eukaryotic translation initiation factor 3 subunit H

Chain 8:

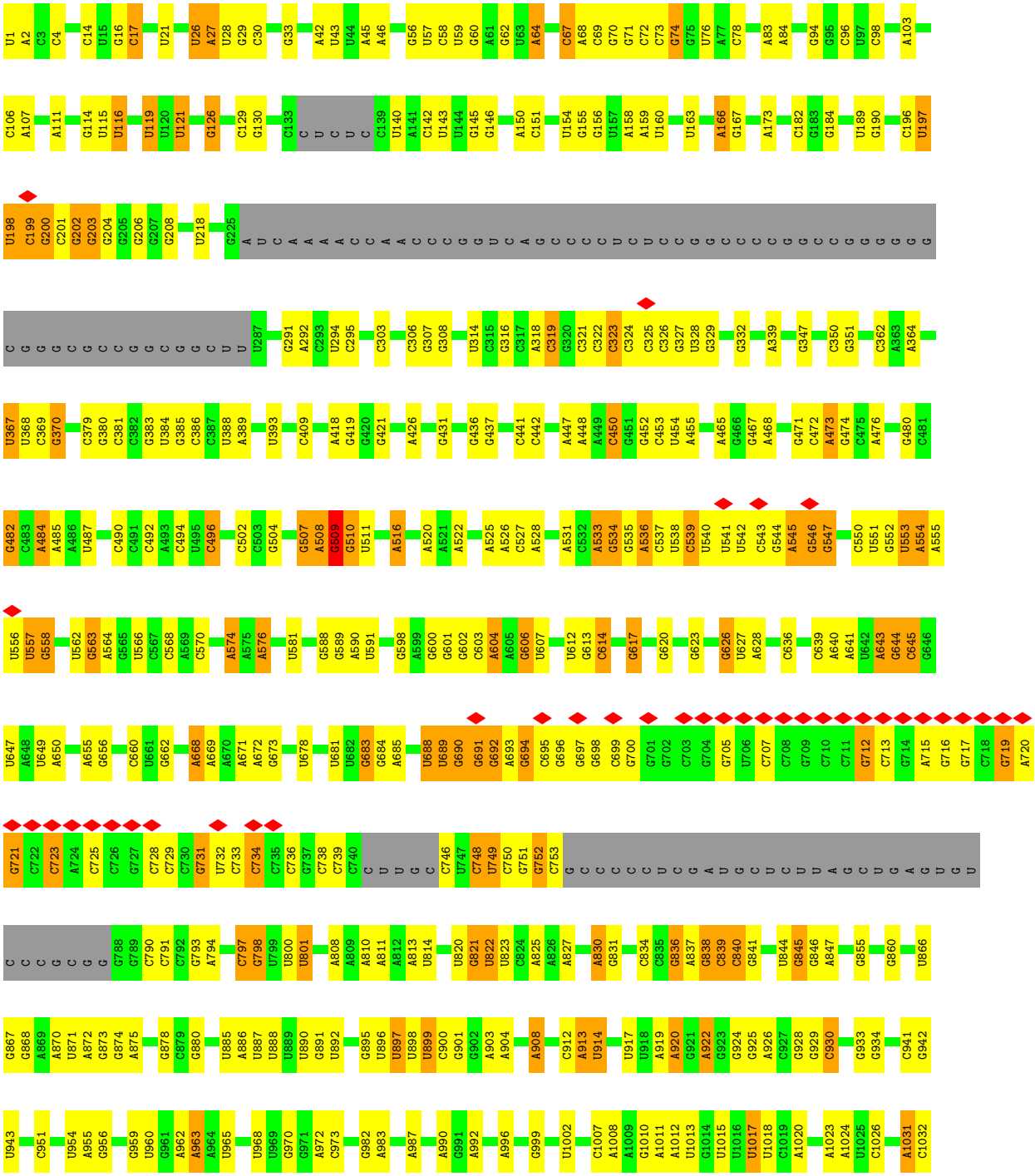


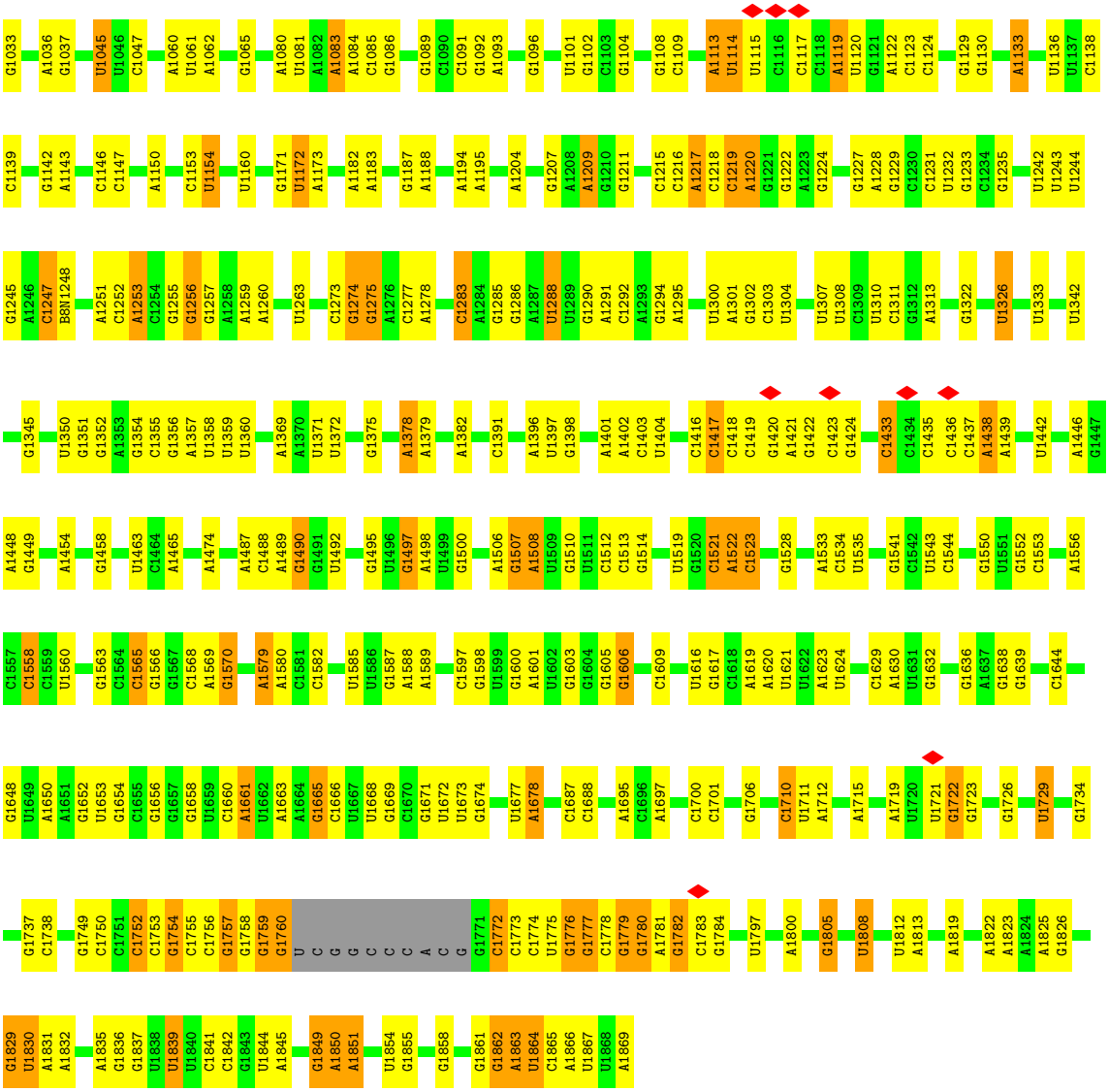
• Molecule 10: 60S ribosomal protein L41

Chain 9:

• Molecule 11: 18S rRNA

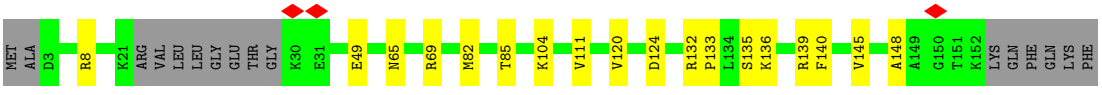
Chain A:





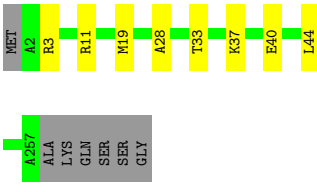
• Molecule 12: 40S ribosomal protein S11

Chain B:



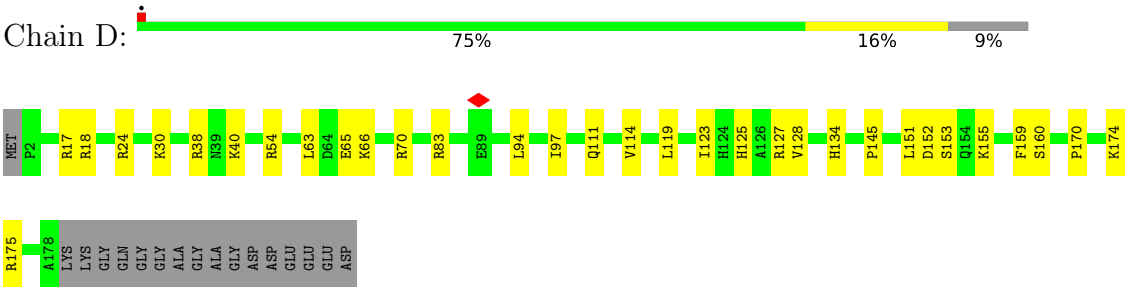
• Molecule 13: 40S ribosomal protein S4, X isoform

Chain C:



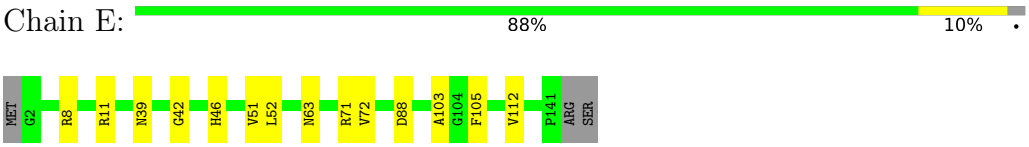
• Molecule 14: 40S ribosomal protein S9

Chain D:



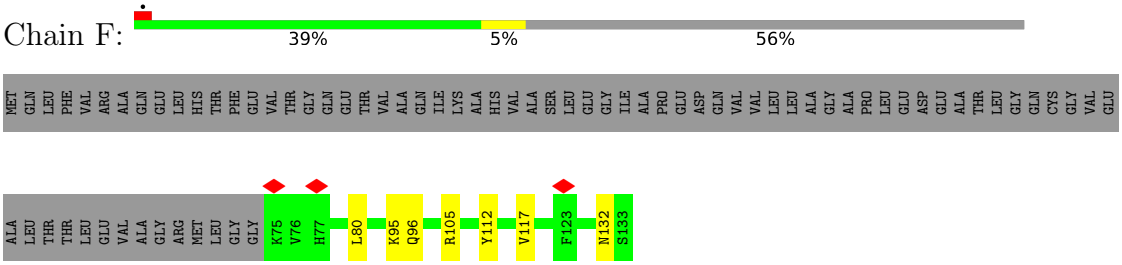
• Molecule 15: 40S ribosomal protein S23

Chain E:



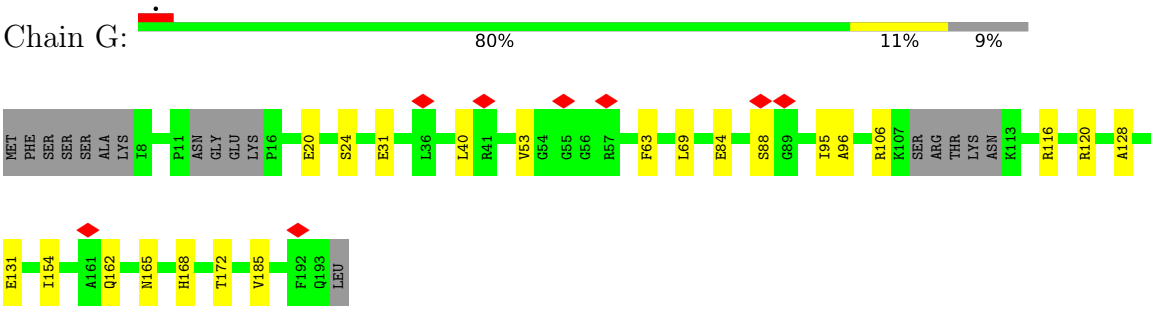
• Molecule 16: Small ribosomal subunit protein eS30

Chain F:



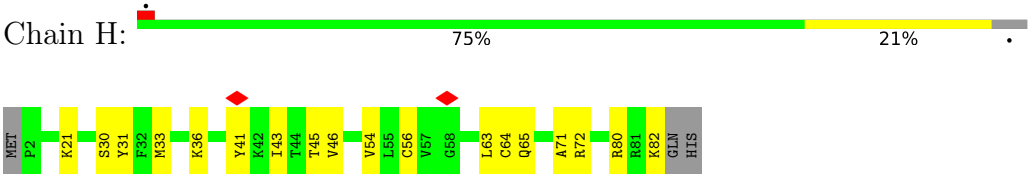
• Molecule 17: 40S ribosomal protein S7

Chain G:



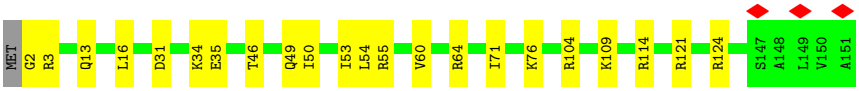
• Molecule 18: 40S ribosomal protein S27

Chain H:



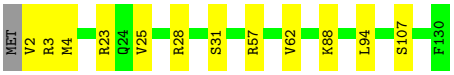
• Molecule 19: 40S ribosomal protein S13

Chain I:



• Molecule 20: 40S ribosomal protein S15a

Chain J:

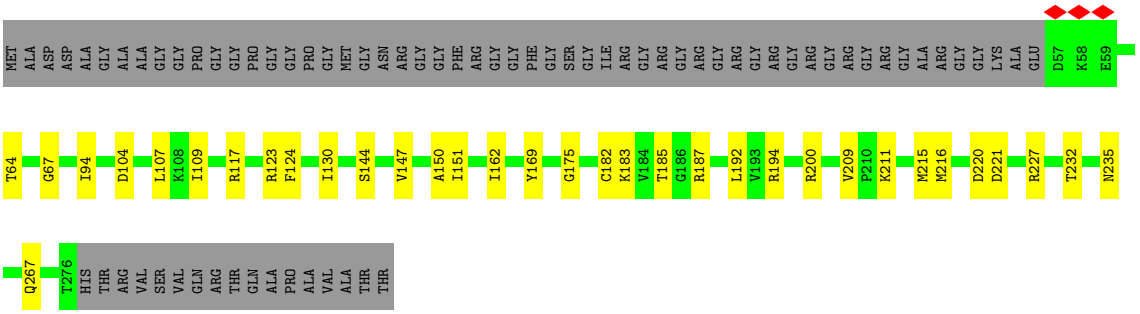


• Molecule 21: 40S ribosomal protein S21

Chain K:

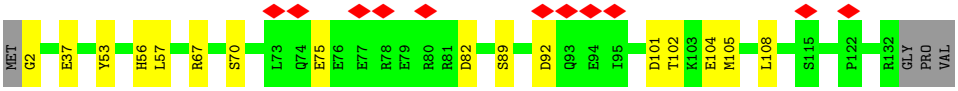
• Molecule 22: 40S ribosomal protein S2

Chain L:



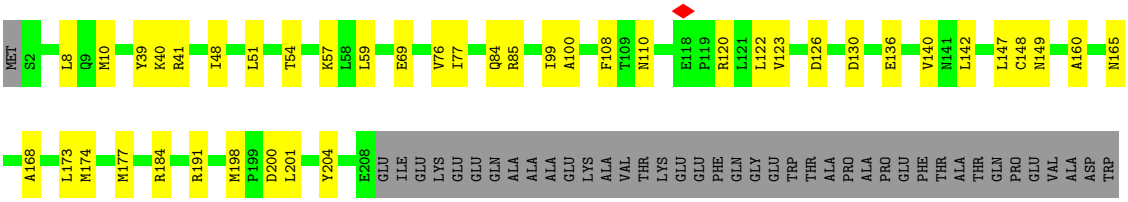
• Molecule 23: 40S ribosomal protein S17

Chain M:

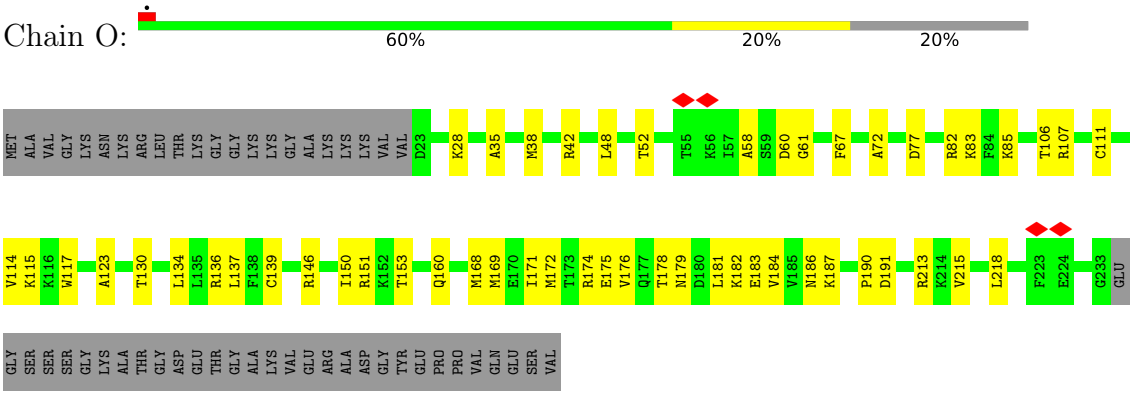


• Molecule 24: 40S ribosomal protein SA

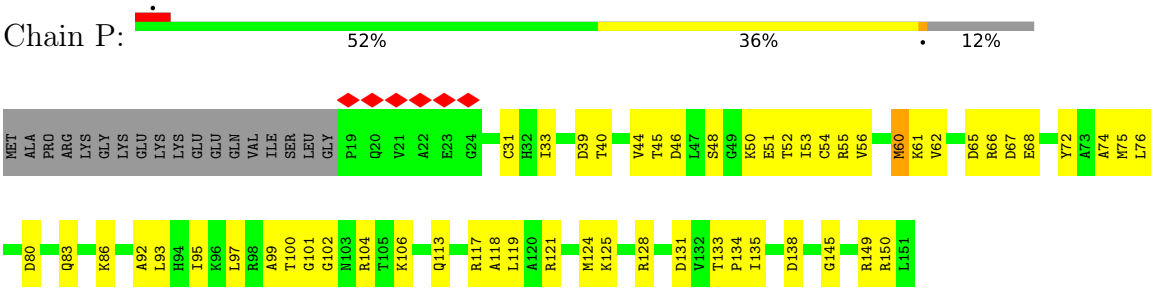
Chain N:



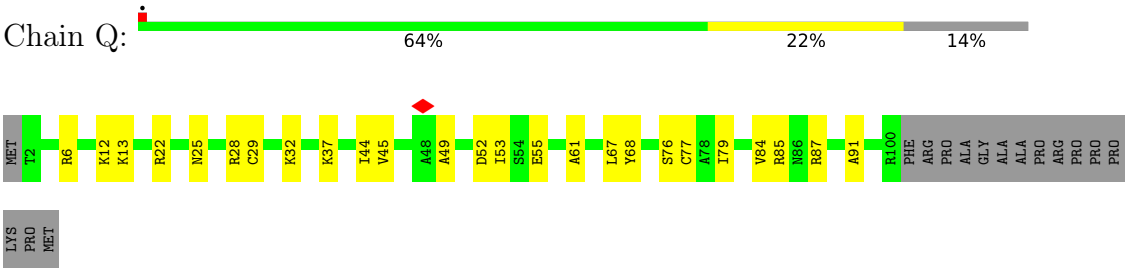
• Molecule 25: 40S ribosomal protein S3a



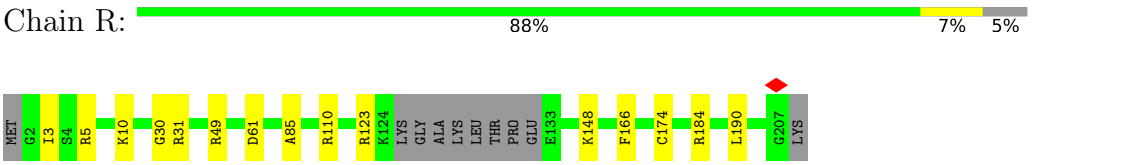
• Molecule 26: 40S ribosomal protein S14



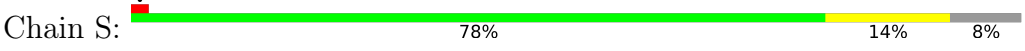
• Molecule 27: 40S ribosomal protein S26

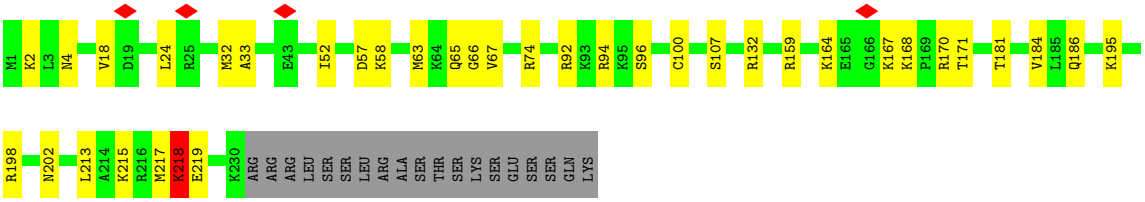


• Molecule 28: 40S ribosomal protein S8



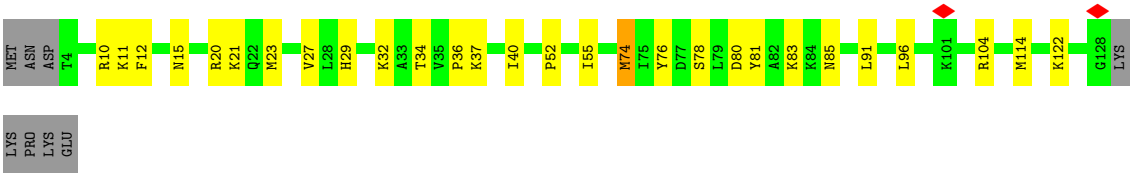
• Molecule 29: 40S ribosomal protein S6





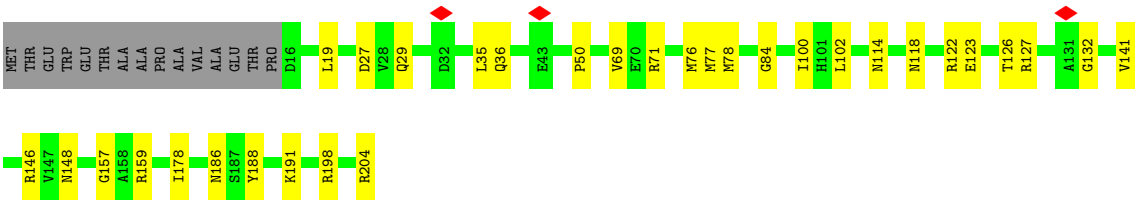
• Molecule 30: 40S ribosomal protein S24

Chain T:



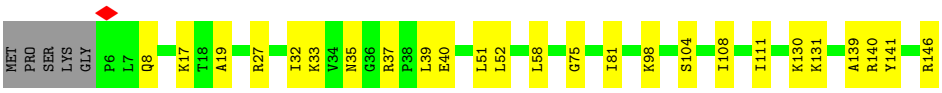
• Molecule 31: 40S ribosomal protein S5

Chain V:



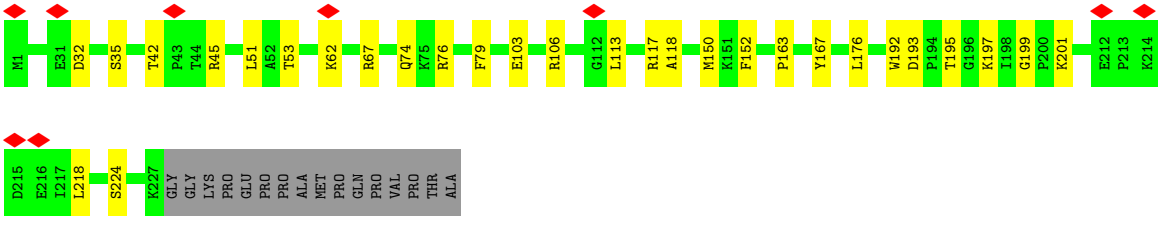
• Molecule 32: 40S ribosomal protein S16

Chain Y:



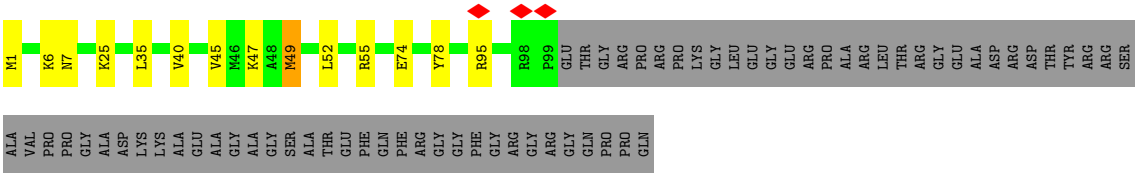
• Molecule 33: 40S ribosomal protein S3

Chain Z:



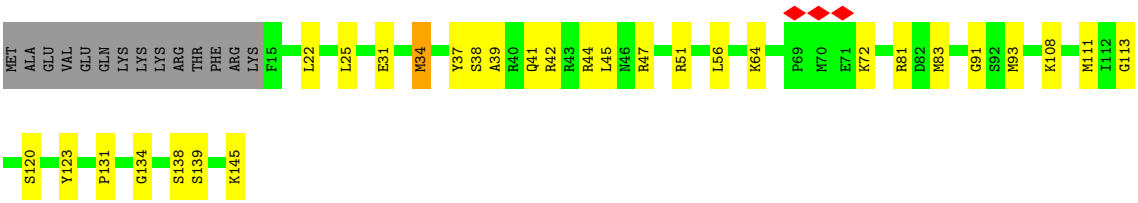
• Molecule 34: 40S ribosomal protein S10

Chain a:



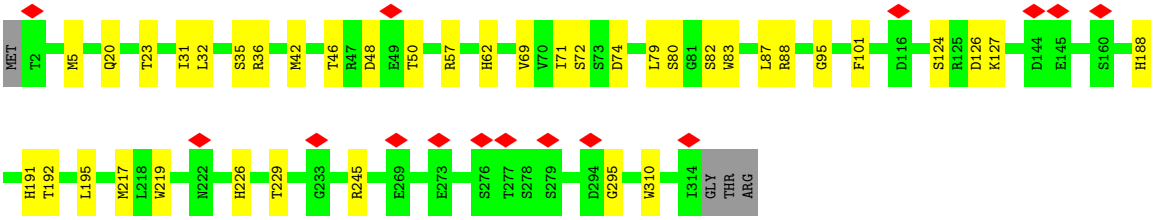
• Molecule 35: 40S ribosomal protein S15

Chain b:



• Molecule 36: Receptor of activated protein C kinase 1

Chain c:

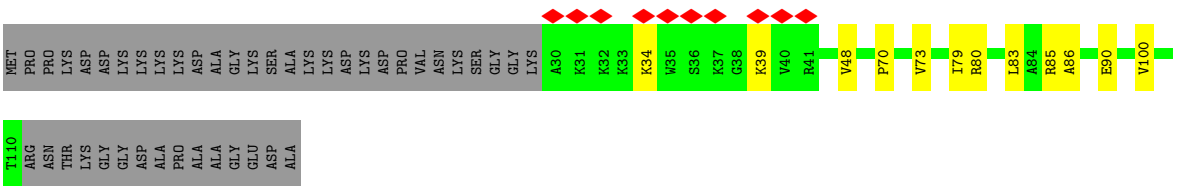


• Molecule 37: 40S ribosomal protein S19

Chain d:

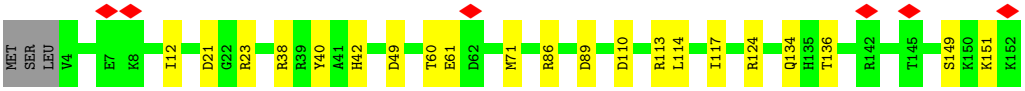
• Molecule 38: 40S ribosomal protein S25

Chain e:



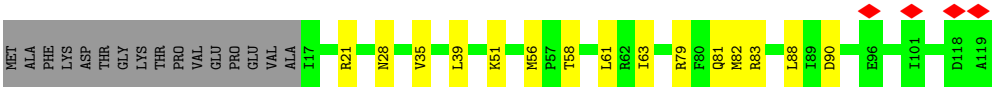
• Molecule 39: 40S ribosomal protein S18

Chain f:



• Molecule 40: 40S ribosomal protein S20

Chain h:

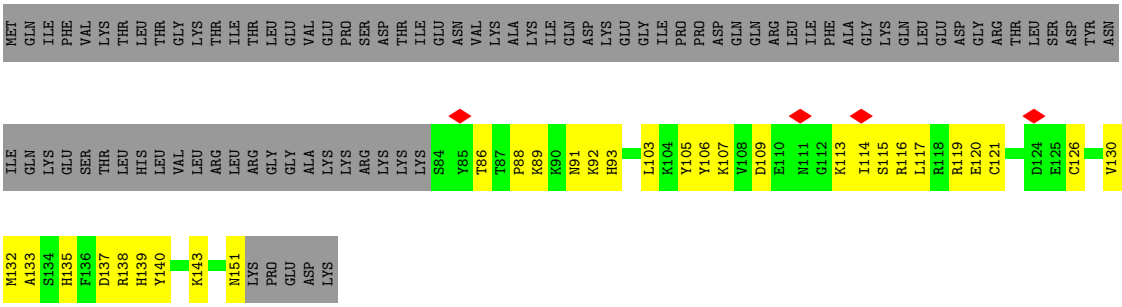


• Molecule 41: 40S ribosomal protein S29

Chain i:

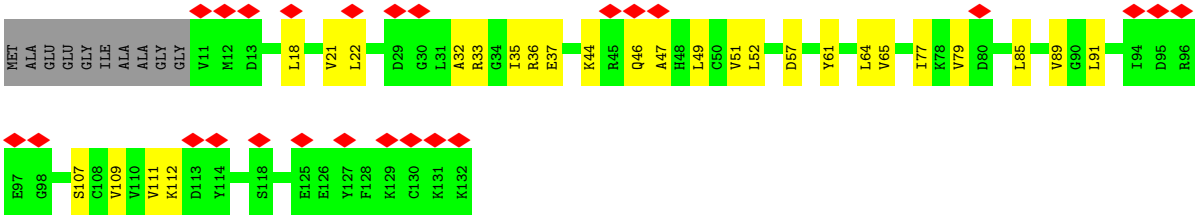
• Molecule 42: Ubiquitin

Chain k:



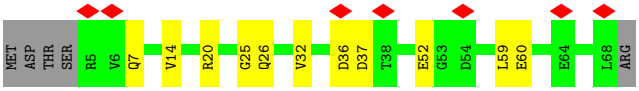
• Molecule 43: 40S ribosomal protein S12

Chain m:



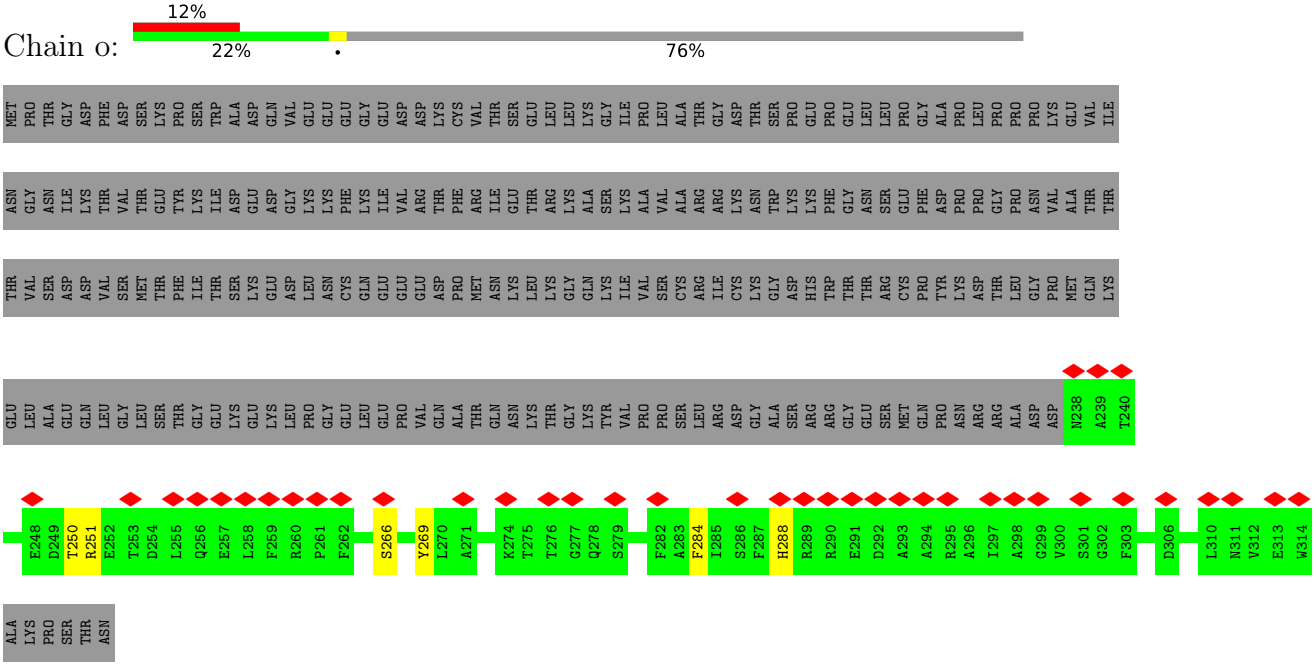
• Molecule 44: 40S ribosomal protein S28

Chain n:



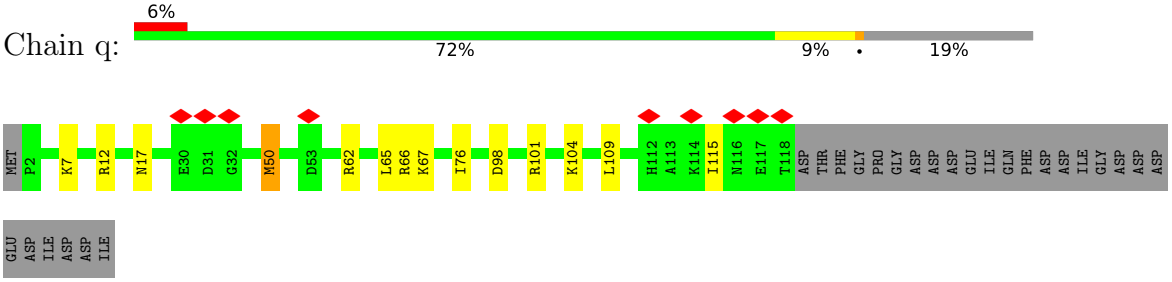
• Molecule 45: Eukaryotic translation initiation factor 3 subunit G

Chain o:



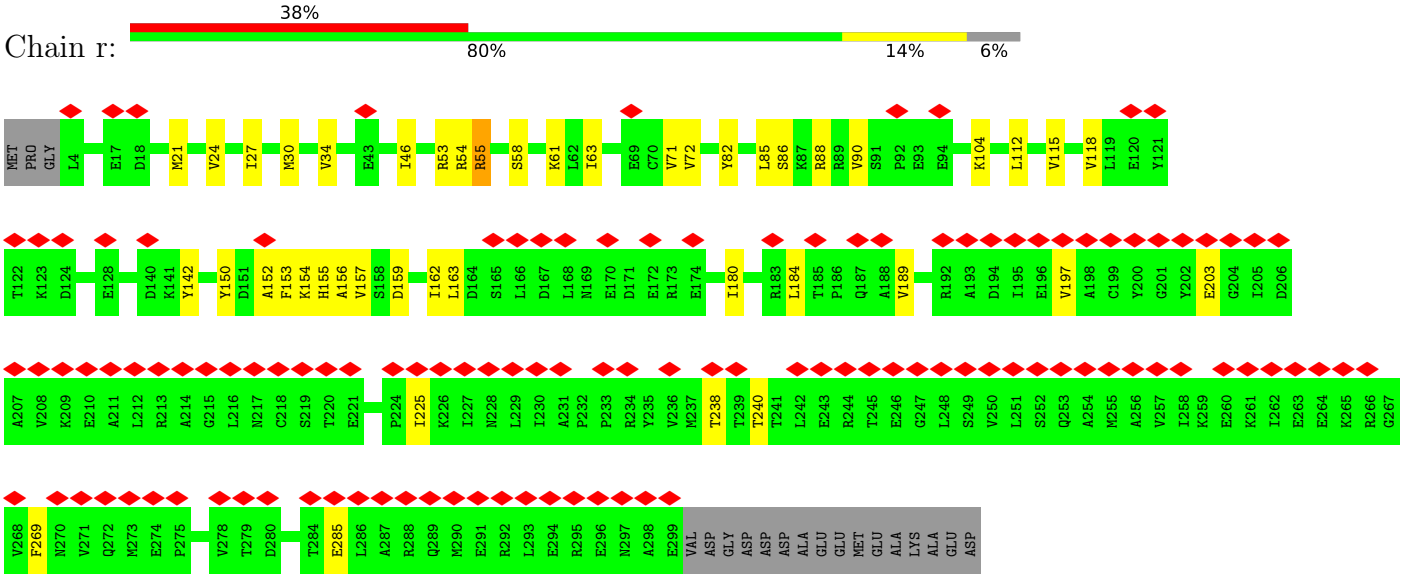
• Molecule 46: Eukaryotic translation initiation factor 1A, X-chromosomal

Chain q:



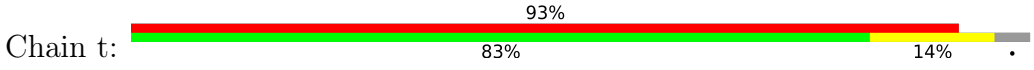
• Molecule 47: Eukaryotic translation initiation factor 2 subunit 1

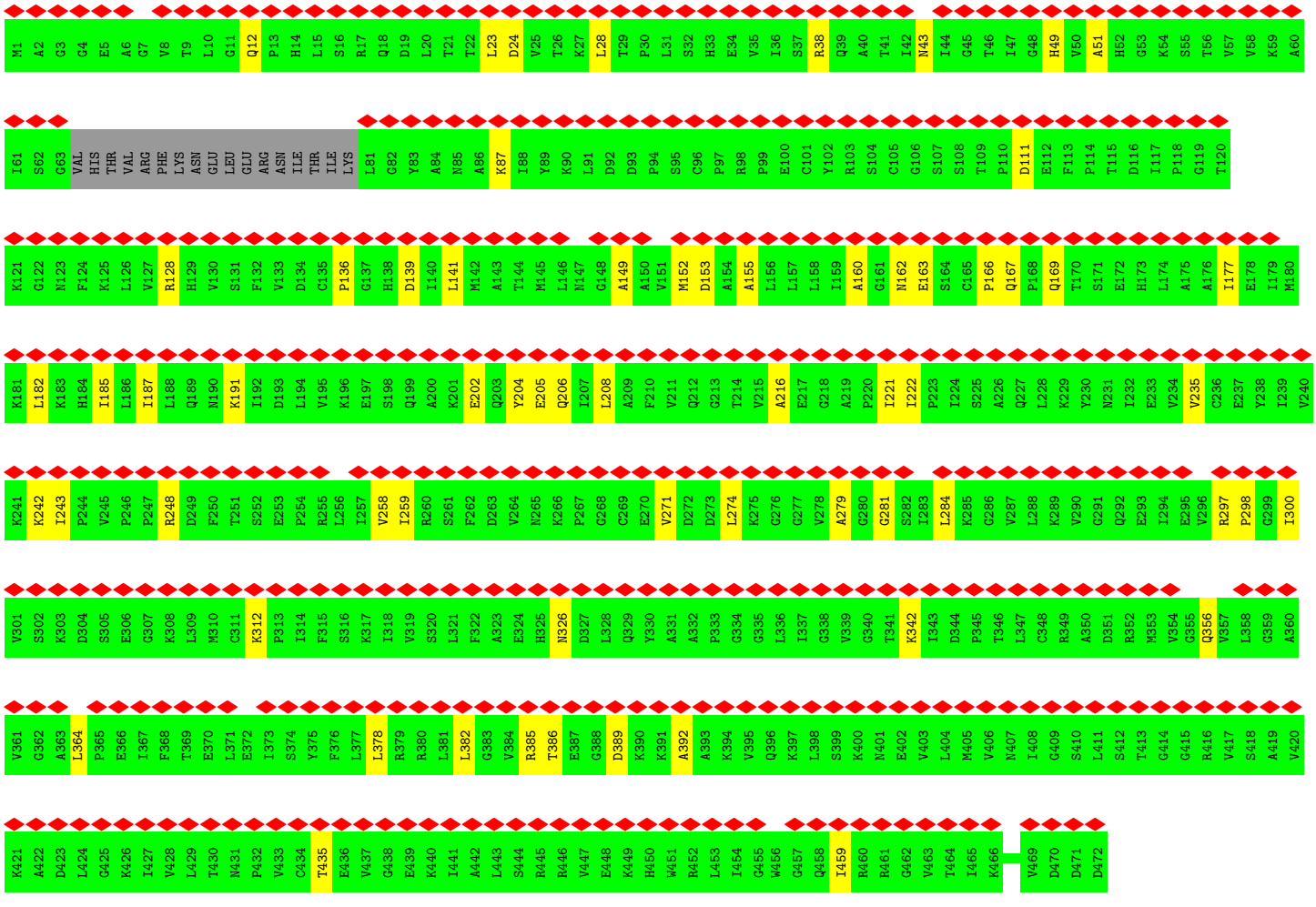
Chain r:



• Molecule 48: Eukaryotic translation initiation factor 2 subunit 3

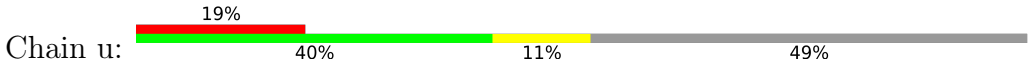
Chain t:

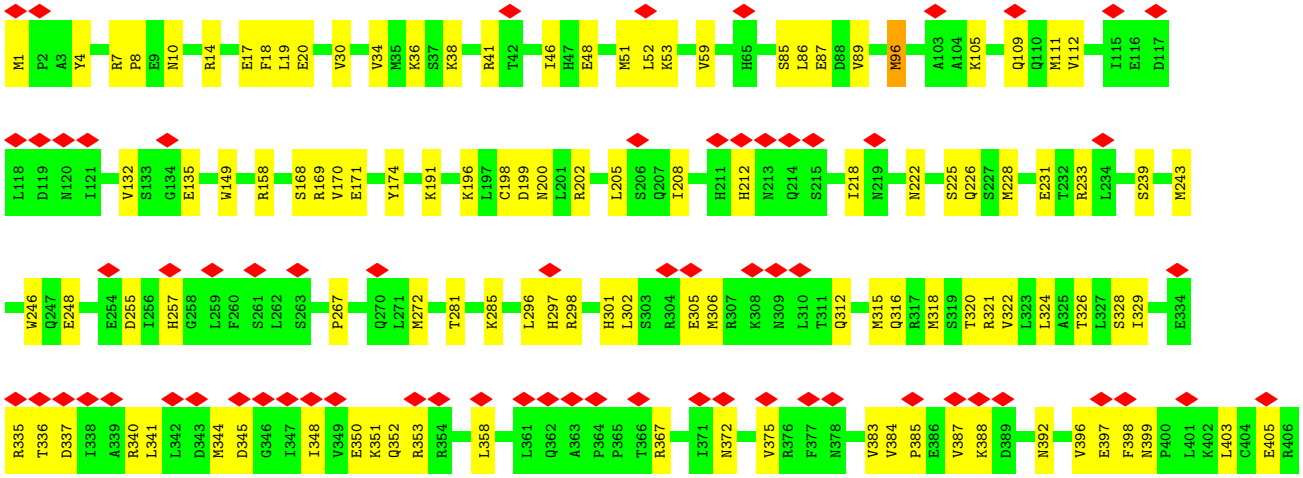


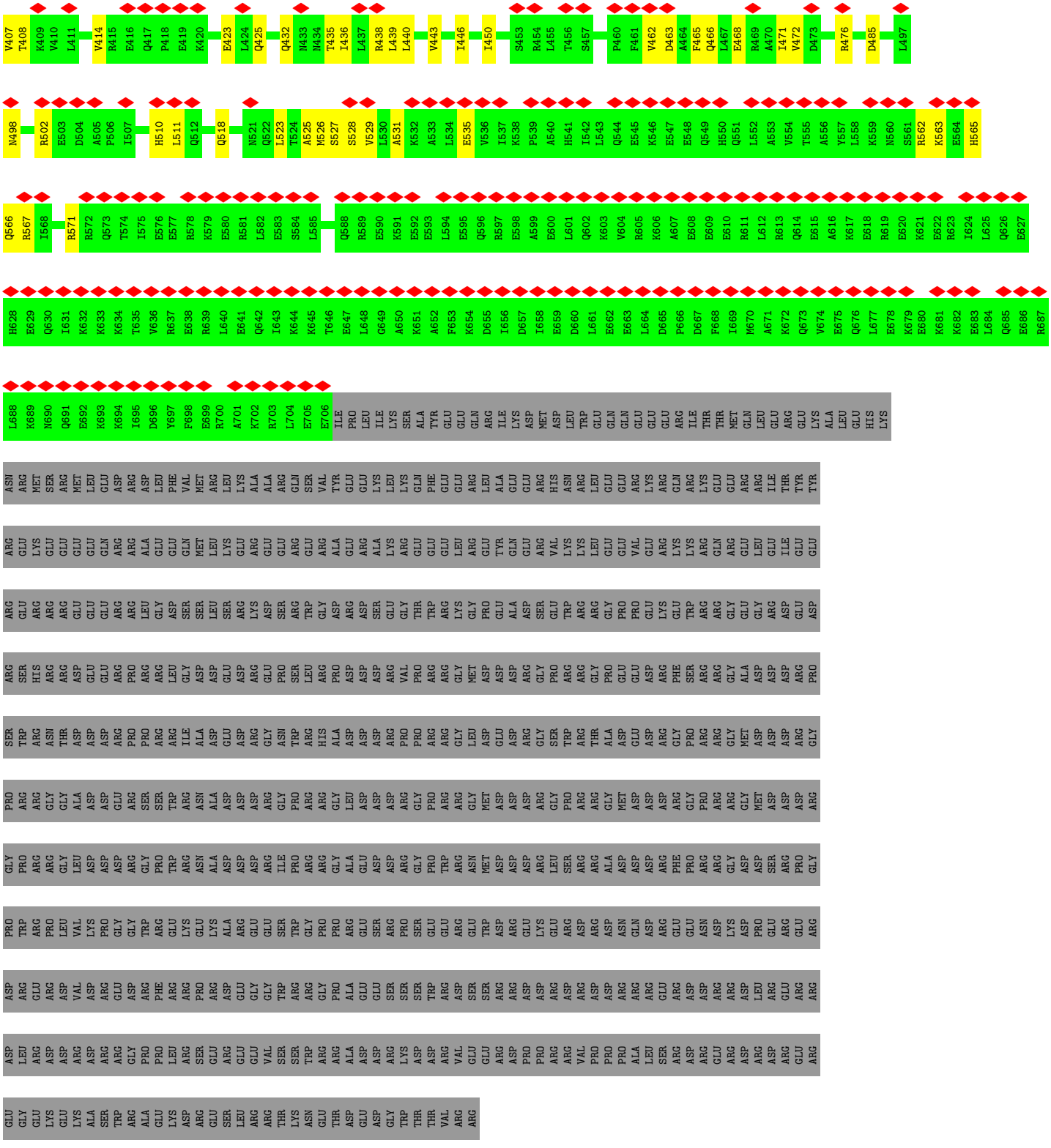


• Molecule 49: Eukaryotic translation initiation factor 3 subunit A

Chain u:

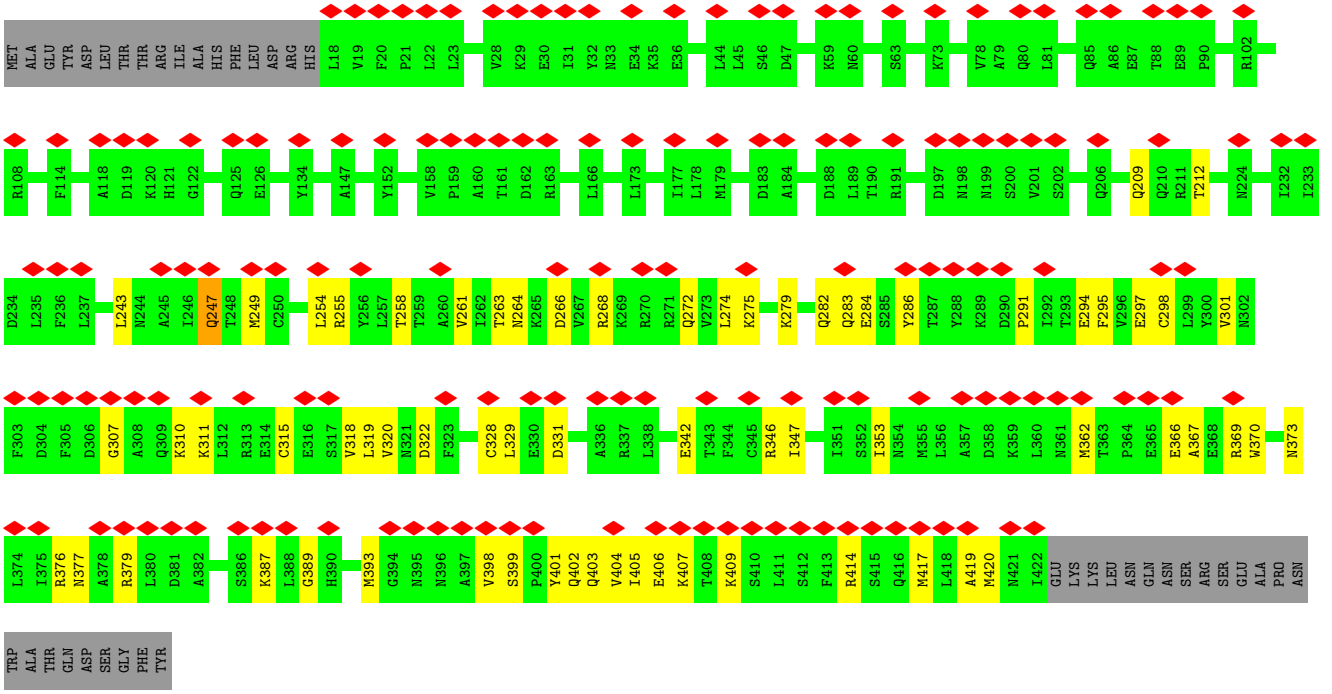






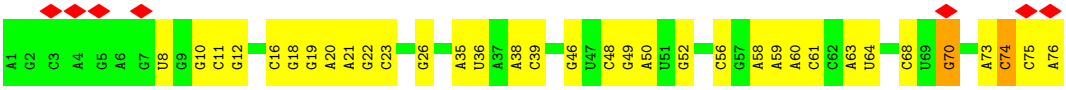
• Molecule 50: Eukaryotic translation initiation factor 3 subunit E

Chain v:



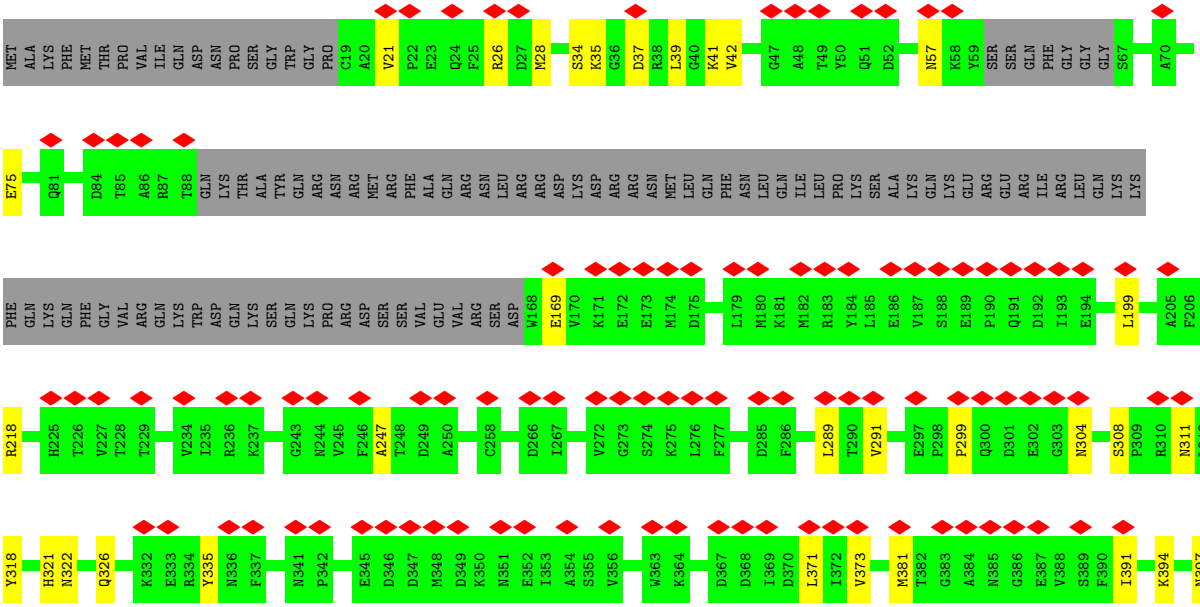
• Molecule 51: Initiator Met-tRNA-i

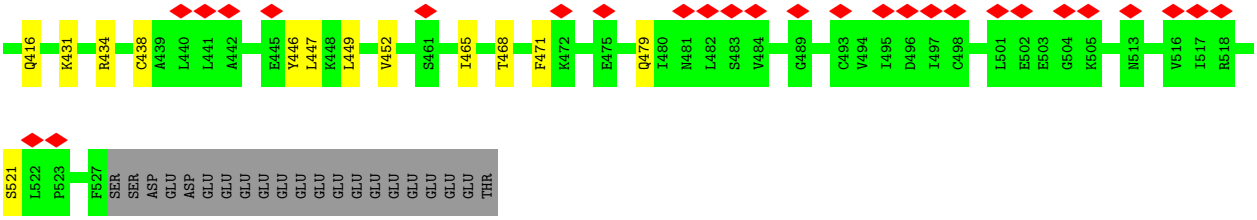
Chain w:



• Molecule 52: Eukaryotic translation initiation factor 3 subunit D

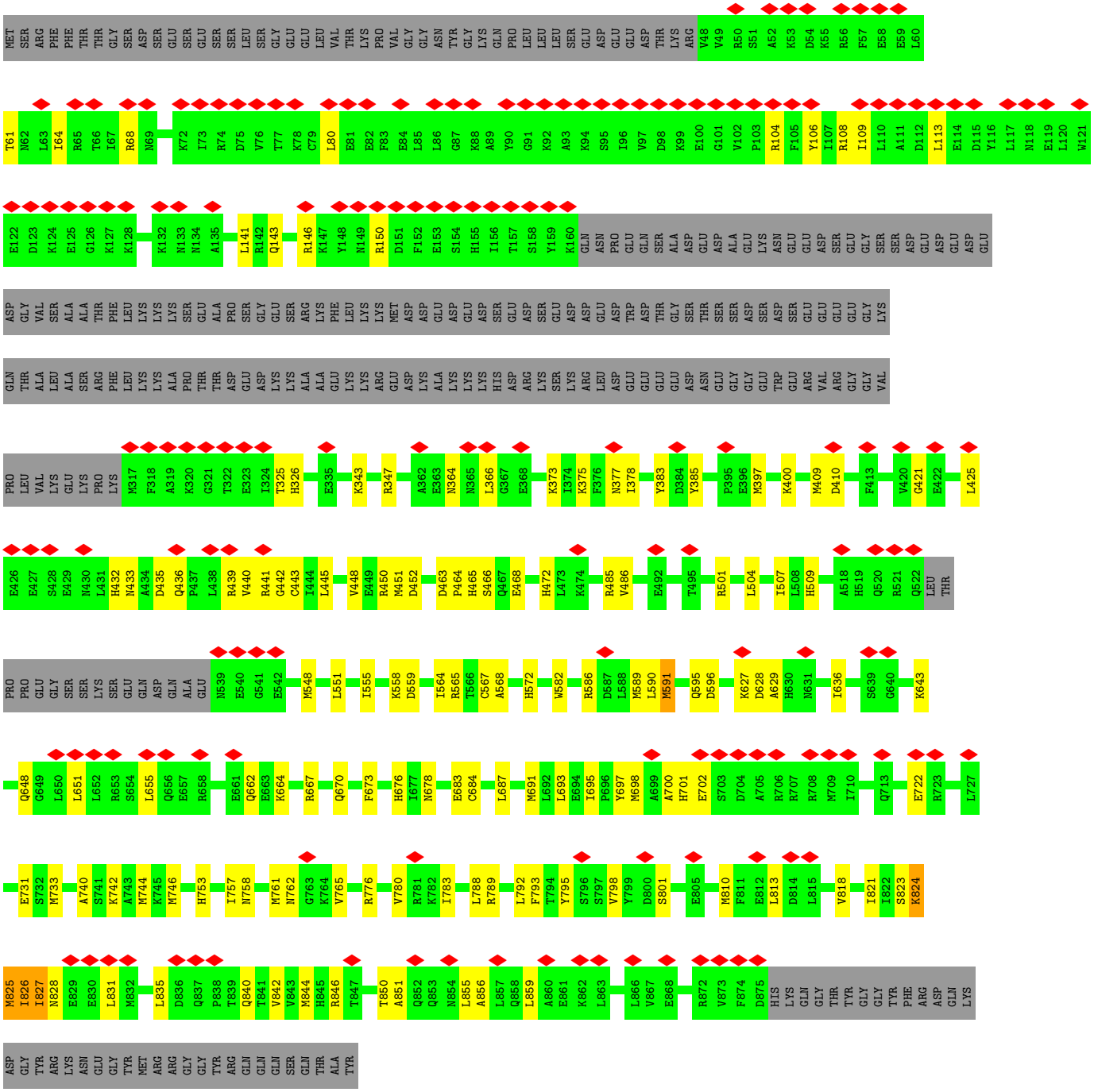
Chain x:





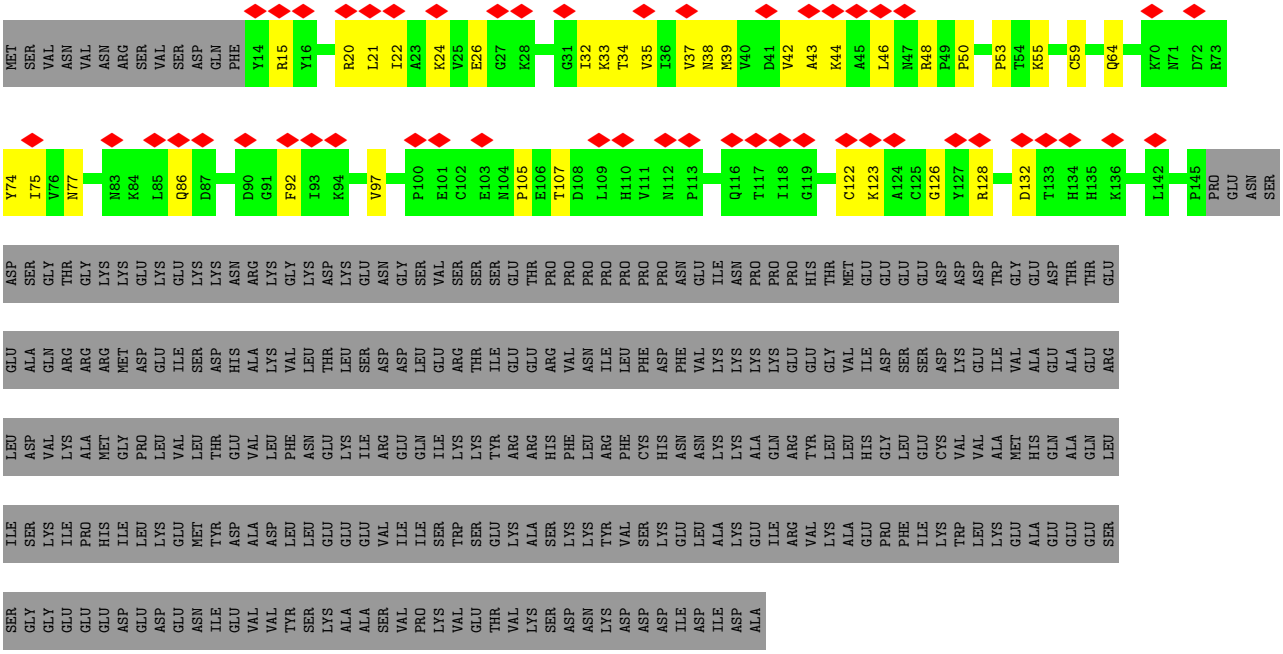
• Molecule 53: Eukaryotic translation initiation factor 3 subunit C

Chain y:



• Molecule 54: Eukaryotic translation initiation factor 5

Chain z:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	25632	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	45	Depositor
Minimum defocus (nm)	200	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	59000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	20.786	Depositor
Minimum map value	-9.149	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3	Depositor
Map size (Å)	417.59998, 417.59998, 417.59998	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.16, 1.16, 1.16	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: MA6, PSU, JMH, 5MC, NA, 5MU, A2M, OMU, MG, B8N, OMC, ZN, 6MZ, UR3, GTP, OMG

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	0.23	0/5002	0.63	5/6743 (0.1%)
2	1	0.19	0/3279	0.55	0/4534
3	2	0.11	0/1491	0.38	0/2068
4	3	0.14	0/1055	0.41	0/1469
5	4	0.14	0/1269	0.42	0/1762
6	5	0.21	0/4458	0.53	2/6027 (0.0%)
7	6	0.21	0/2212	0.57	0/3034
8	7	0.20	0/1365	0.51	1/2124 (0.0%)
9	8	0.16	0/1572	0.47	0/2187
10	9	0.28	0/231	0.57	0/294
11	A	0.22	0/41130	0.41	3/64100 (0.0%)
12	B	0.18	0/1186	0.39	0/1585
13	C	0.20	0/2077	0.49	1/2796 (0.0%)
14	D	0.22	0/1502	0.52	0/2008
15	E	0.20	0/1105	0.48	0/1476
16	F	0.19	0/468	0.58	0/618
17	G	0.21	0/1451	0.53	0/1942
18	H	0.19	0/644	0.47	0/864
19	I	0.34	2/1232 (0.2%)	0.56	0/1656
20	J	0.25	0/1051	0.63	4/1406 (0.3%)
21	K	0.21	0/623	0.48	0/833
22	L	0.23	0/1743	0.53	0/2354
23	M	0.24	0/1078	0.64	0/1447
24	N	0.21	0/1670	0.51	0/2271
25	O	0.23	0/1742	0.58	0/2330
26	P	0.24	0/1010	0.64	1/1353 (0.1%)
27	Q	0.21	0/805	0.50	0/1079
28	R	0.16	0/1654	0.36	0/2203
29	S	0.21	0/1885	0.46	1/2510 (0.0%)
30	T	0.22	0/1032	0.56	1/1371 (0.1%)
31	V	0.22	0/1516	0.54	1/2037 (0.0%)
32	Y	0.23	0/1142	0.56	0/1528

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	Z	0.21	0/1793	0.50	0/2414
34	a	0.26	0/859	0.65	1/1159 (0.1%)
35	b	0.25	0/1094	0.67	1/1464 (0.1%)
36	c	0.19	0/2493	0.52	1/3394 (0.0%)
37	d	0.19	0/1123	0.47	0/1504
38	e	0.23	0/657	0.57	0/878
39	f	0.21	0/1245	0.52	0/1665
40	h	0.24	0/827	0.56	0/1110
41	i	0.21	0/429	0.43	0/568
42	k	0.42	0/566	0.80	0/753
43	m	0.21	0/960	0.56	0/1286
44	n	0.24	0/508	0.58	0/680
45	o	0.20	0/628	0.52	0/846
46	q	0.19	0/954	0.52	1/1268 (0.1%)
47	r	0.27	1/2167 (0.0%)	0.57	0/2943
48	t	0.20	0/3494	0.47	0/4726
49	u	0.26	0/5475	0.67	1/7432 (0.0%)
50	v	0.26	0/2778	0.68	1/3797 (0.0%)
51	w	0.29	0/1795	0.55	0/2798
52	x	0.19	0/2885	0.54	2/3940 (0.1%)
53	y	0.38	4/5350 (0.1%)	0.70	8/7215 (0.1%)
54	z	0.23	0/1066	0.58	0/1436
All	All	0.23	7/128826 (0.0%)	0.51	36/183285 (0.0%)

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	y	824	LYS	C-N	13.64	1.50	1.33
53	y	825	MET	C-N	-9.93	1.21	1.33
53	y	826	ILE	C-N	-8.13	1.23	1.33
53	y	827	ILE	C-N	6.95	1.44	1.33
19	I	34	LYS	C-N	-6.91	1.25	1.33
47	r	55	ARG	C-N	-5.36	1.26	1.33
19	I	35	GLU	C-N	5.36	1.41	1.33

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	y	824	LYS	O-C-N	9.57	131.93	122.07
53	y	826	ILE	O-C-N	-8.03	114.09	121.87
49	u	96	MET	CA-CB-CG	7.59	129.29	114.10
53	y	827	ILE	CA-C-N	-7.37	110.79	122.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	y	827	ILE	C-N-CA	-7.37	110.79	122.73
35	b	34	MET	CA-CB-CG	7.33	128.75	114.10
13	C	19	MET	CA-CB-CG	6.50	127.11	114.10
11	A	644	OMG	O3'-P-O5'	6.41	113.62	104.00
20	J	3	ARG	CA-C-N	-6.26	109.95	121.41
20	J	3	ARG	C-N-CA	-6.26	109.95	121.41
53	y	825	MET	CA-C-N	6.25	129.02	120.46
53	y	825	MET	C-N-CA	6.25	129.02	120.46
29	S	218	LYS	N-CA-C	-5.97	104.16	112.45
46	q	50	MET	CB-CG-SD	5.94	130.52	112.70
31	V	76	MET	CB-CG-SD	5.88	130.35	112.70
52	x	26	ARG	CA-CB-CG	5.83	125.76	114.10
6	5	398	MET	CA-CB-CG	5.64	125.38	114.10
1	0	1071	LYS	CA-CB-CG	5.53	125.15	114.10
34	a	49	MET	CB-CG-SD	5.51	129.22	112.70
53	y	591	MET	CA-CB-CG	5.37	124.83	114.10
1	0	1024	MET	CB-CG-SD	5.36	128.77	112.70
1	0	1110	MET	CA-CB-CG	5.33	124.77	114.10
6	5	484	GLN	CA-CB-CG	5.33	124.75	114.10
26	P	60	MET	CA-CB-CG	5.32	124.75	114.10
20	J	4	MET	N-CA-CB	-5.32	102.61	111.06
30	T	74	MET	CG-SD-CE	-5.30	89.24	100.90
36	c	42	MET	CB-CG-SD	5.29	128.58	112.70
8	7	-21	A	P-O3'-C3'	5.28	128.12	120.20
20	J	4	MET	CA-CB-CG	5.25	124.61	114.10
11	A	731	G	P-O3'-C3'	5.24	128.06	120.20
11	A	509	OMG	O3'-P-O5'	5.23	111.85	104.00
52	x	314	MET	CA-CB-CG	5.15	124.40	114.10
1	0	1048	MET	CB-CG-SD	-5.08	97.44	112.70
53	y	827	ILE	CB-CA-C	-5.03	105.35	112.14
50	v	247	GLN	CA-CB-CG	5.02	124.15	114.10
1	0	1002	GLU	CA-CB-CG	5.00	124.11	114.10

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	4920	0	5102	96	0
2	1	3258	0	1917	25	0
3	2	1493	0	677	0	0
4	3	1057	0	475	2	0
5	4	1272	0	564	3	0
6	5	4347	0	4294	69	0
7	6	2196	0	1547	28	0
8	7	1218	0	620	6	0
9	8	1574	0	687	7	0
10	9	230	0	276	6	0
11	A	37429	0	18903	397	0
12	B	1166	0	1233	12	0
13	C	2035	0	2138	19	0
14	D	1477	0	1589	23	0
15	E	1087	0	1154	10	0
16	F	461	0	498	7	0
17	G	1430	0	1520	13	0
18	H	631	0	657	13	0
19	I	1208	0	1294	18	0
20	J	1034	0	1080	10	0
21	K	617	0	622	9	0
22	L	1707	0	1794	23	0
23	M	1064	0	1118	15	0
24	N	1633	0	1640	31	0
25	O	1715	0	1785	42	0
26	P	997	0	1021	43	0
27	Q	792	0	843	22	0
28	R	1627	0	1706	13	0
29	S	1862	0	2018	33	0
30	T	1015	0	1086	22	0
31	V	1495	0	1549	24	0
32	Y	1124	0	1193	18	0
33	Z	1765	0	1865	18	0
34	a	834	0	861	10	0
35	b	1072	0	1121	21	0
36	c	2436	0	2393	25	0
37	d	1105	0	1138	19	0
38	e	649	0	724	9	0
39	f	1227	0	1298	17	0
40	h	817	0	882	13	0
41	i	419	0	415	8	0
42	k	554	0	556	28	0
43	m	950	0	987	20	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	n	506	0	536	10	0
45	o	616	0	600	3	0
46	q	943	0	968	12	0
47	r	2138	0	1930	37	0
48	t	3439	0	3578	39	0
49	u	5383	0	5085	105	0
50	v	2740	0	2251	50	0
51	w	1604	0	816	4	0
52	x	2842	0	2209	32	0
53	y	5263	0	5219	116	0
54	z	1044	0	1058	26	0
55	0	32	0	12	2	0
56	0	1	0	0	0	0
57	0	1	0	0	0	0
57	A	87	0	0	0	0
57	f	1	0	0	0	0
58	Q	1	0	0	0	0
58	k	1	0	0	0	0
All	All	123641	0	99102	1401	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (1401) 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)
50:v:347:ILE:HD11	53:y:827:ILE:HG22	1.38	1.04
11:A:1656:G:H1	11:A:1668:U:H3	1.02	1.01
53:y:823:SER:O	53:y:827:ILE:HG23	1.74	0.88
47:r:54:ARG:HG3	47:r:55:ARG:H	1.39	0.85
11:A:1304:U:H4'	42:k:92:LYS:HZ1	1.42	0.84
53:y:824:LYS:O	53:y:827:ILE:HG12	1.82	0.80
11:A:1091:C:HO2'	20:J:2:VAL:N	1.81	0.79
49:u:225:SER:HA	49:u:228:MET:HE2	1.66	0.77
31:V:122:ARG:HG3	44:n:59:LEU:HD11	1.66	0.77
11:A:1222:G:H5"	31:V:78:MET:HE1	1.66	0.77
11:A:924:G:H1	11:A:1018:U:H3	1.32	0.77
11:A:1033:G:H1	11:A:1080:A:HO2'	1.30	0.76
11:A:1652:G:H1	11:A:1672:U:H3	1.33	0.75
53:y:439:ARG:HH12	53:y:441:ARG:HB2	1.51	0.75
43:m:79:VAL:HG21	43:m:85:LEU:HB2	1.68	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:u:407:VAL:HG21	49:u:435:THR:HG21	1.68	0.74
53:y:835:LEU:HB2	53:y:840:GLN:O	1.86	0.74
49:u:205:LEU:HD11	49:u:233:ARG:HH12	1.51	0.74
54:z:48:ARG:HH21	54:z:97:VAL:HA	1.53	0.73
11:A:962:A:H2'	47:r:54:ARG:HH11	1.53	0.73
47:r:58:SER:HB2	47:r:61:LYS:HD3	1.71	0.72
53:y:683:GLU:HG3	53:y:733:MET:HE3	1.70	0.72
11:A:1523:C:H4'	39:f:149:SER:H	1.55	0.72
1:0:755:LEU:HB2	1:0:822:PRO:HA	1.72	0.71
49:u:372:ASN:HA	49:u:375:VAL:HG22	1.72	0.71
29:S:213:LEU:HG	29:S:217:MET:SD	2.30	0.70
32:Y:40:GLU:HG2	32:Y:52:LEU:HD11	1.73	0.70
25:O:77:ASP:OD2	49:u:14[B]:ARG:NH1	2.25	0.70
1:0:815:ARG:HG2	1:0:845:MET:HE1	1.73	0.70
47:r:53:ARG:HG3	47:r:88:ARG:HH21	1.56	0.70
7:6:243:ILE:O	7:6:340:ARG:NH1	2.24	0.70
11:A:531:A:N1	11:A:552:G:C6	2.60	0.70
22:L:64:THR:HG23	22:L:67:GLY:H	1.57	0.69
50:v:405:ILE:HG22	50:v:409:LYS:HE2	1.72	0.69
11:A:1497:G:N7	34:a:25:LYS:NZ	2.41	0.69
49:u:272:MET:HG2	49:u:302:LEU:HD21	1.74	0.69
49:u:523:LEU:HG	49:u:527:SER:HB3	1.74	0.69
49:u:312:GLN:HA	49:u:315:MET:HB2	1.75	0.68
17:G:154:ILE:HB	17:G:185:VAL:HG12	1.75	0.68
50:v:342:GLU:HG3	50:v:346:ARG:HH22	1.59	0.68
53:y:448:VAL:HA	53:y:451:MET:HG3	1.75	0.68
49:u:472:VAL:HG23	53:y:798:VAL:HG11	1.76	0.68
50:v:243:LEU:HA	50:v:247:GLN:HB3	1.76	0.67
52:x:391:ILE:HG22	52:x:446:TYR:HB2	1.76	0.67
27:Q:87:ARG:NH1	27:Q:91:ALA:O	2.27	0.67
30:T:20:ARG:HB2	30:T:74:MET:HE1	1.76	0.67
49:u:405:GLU:HA	49:u:408:THR:HG22	1.77	0.67
11:A:606:G:N3	16:F:132:ASN:ND2	2.41	0.67
50:v:307:GLY:HA2	50:v:310:LYS:HE2	1.75	0.67
28:R:110:ARG:HD3	28:R:123:ARG:HE	1.60	0.67
6:5:469:THR:OG1	50:v:387:LYS:NZ	2.28	0.67
29:S:63:MET:SD	29:S:63:MET:N	2.68	0.66
43:m:32:ALA:HB1	43:m:37:GLU:HB3	1.78	0.66
11:A:1522:A:H2'	39:f:149:SER:HB2	1.77	0.66
26:P:86:LYS:NZ	26:P:124:MET:SD	2.69	0.66
11:A:1291:A:O2'	42:k:140:TYR:OH	2.14	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:6:286:ALA:HB1	7:6:334:VAL:HG21	1.78	0.66
26:P:121:ARG:NH1	27:Q:52:ASP:OD2	2.27	0.66
49:u:531:ALA:O	49:u:535:GLU:HB2	1.96	0.66
13:C:100:ARG:HB2	13:C:114:ILE:HD13	1.78	0.66
49:u:397:GLU:OE1	49:u:399:ASN:ND2	2.29	0.66
1:0:725:LEU:HB3	1:0:753:VAL:HG22	1.77	0.65
1:0:1110:MET:O	1:0:1158:CYS:HA	1.95	0.65
26:P:97:LEU:HD21	27:Q:44:ILE:HG21	1.77	0.65
49:u:198:CYS:HG	49:u:202:ARG:HH21	1.45	0.65
50:v:279:LYS:O	50:v:283:GLN:NE2	2.29	0.65
26:P:99:ALA:H	26:P:133:THR:HG22	1.61	0.65
53:y:504:LEU:HD11	53:y:567:CYS:HB3	1.79	0.65
1:0:1015:LYS:HB2	1:0:1048:MET:HE2	1.78	0.65
1:0:1138:VAL:HA	1:0:1161:ILE:HG12	1.79	0.65
42:k:135:HIS:O	42:k:151:ASN:ND2	2.29	0.65
49:u:132:VAL:O	53:y:678:ASN:ND2	2.30	0.65
49:u:321:ARG:HE	49:u:423:GLU:HG3	1.61	0.65
1:0:670:ALA:HA	1:0:700:ILE:O	1.97	0.65
1:0:634:ILE:HD11	1:0:724:ILE:HG13	1.79	0.65
11:A:973:C:N3	26:P:55:ARG:NH2	2.45	0.65
15:E:52:LEU:N	15:E:71:ARG:O	2.30	0.65
11:A:151:C:O2	29:S:132:ARG:NH2	2.30	0.64
11:A:1729:U:H3	11:A:1805:G:H1	1.44	0.64
49:u:335:ARG:NH2	49:u:352:GLN:OE1	2.30	0.64
50:v:263:THR:HG21	50:v:328:CYS:HB3	1.79	0.64
2:1:497:GLN:HG3	2:1:499:PRO:HD2	1.79	0.64
47:r:53:ARG:HG3	47:r:88:ARG:NH2	2.12	0.64
52:x:247:ALA:HB3	52:x:373:VAL:HG22	1.79	0.64
26:P:44:VAL:HG23	26:P:93:LEU:HD11	1.80	0.64
11:A:1829:G:H1'	11:A:1850:MA6:H2	1.79	0.64
46:q:104:LYS:HE2	46:q:115:ILE:HD12	1.78	0.64
11:A:919:A:OP2	19:I:64:ARG:NH2	2.31	0.64
23:M:89:SER:OG	23:M:92:ASP:OD1	2.14	0.63
11:A:1550:G:H3'	11:A:1579:A:H61	1.64	0.63
11:A:1722:G:H1	11:A:1812:U:H3	1.46	0.63
44:n:7:GLN:NE2	44:n:59:LEU:O	2.30	0.63
11:A:925:G:H1	11:A:1017:U:H3	1.44	0.63
15:E:39:ASN:ND2	15:E:42:GLY:O	2.31	0.63
2:1:291:GLY:HA3	2:1:362:GLY:HA2	1.78	0.63
31:V:198:ARG:HH12	47:r:82:TYR:HB3	1.62	0.63
11:A:1844:U:H3	11:A:1855:G:H1	1.46	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:509:OMG:HM22	11:A:510:G:C8	2.34	0.63
12:B:104:LYS:O	15:E:11:ARG:NH2	2.30	0.62
1:0:948:LEU:HD13	1:0:959:LEU:HD22	1.81	0.62
13:C:11:ARG:HA	13:C:28:ALA:HB2	1.81	0.62
11:A:617:G:H4'	15:E:88:ASP:HB2	1.81	0.62
50:v:320:VAL:HG12	50:v:329:LEU:HD11	1.80	0.62
53:y:568:ALA:O	53:y:572:HIS:HB2	2.00	0.62
5:4:114:ALA:HB1	5:4:141:GLU:H	1.64	0.62
26:P:56:VAL:HG23	26:P:60:MET:HG3	1.81	0.62
11:A:1017:U:OP2	19:I:55:ARG:NH1	2.32	0.62
11:A:1288:U:O4	11:A:1311:C:N3	2.32	0.62
49:u:17:GLU:HA	49:u:20:GLU:HG3	1.81	0.62
49:u:383:VAL:O	49:u:388:LYS:NZ	2.32	0.62
11:A:26:U:H2'	11:A:27:A2M:H8	1.81	0.62
11:A:1752:C:O2'	11:A:1782:G:N2	2.32	0.62
11:A:69:C:OP1	29:S:164:LYS:NZ	2.33	0.62
53:y:851:ALA:O	53:y:855:LEU:HB2	2.00	0.62
11:A:218:U:O2	28:R:184:ARG:NH1	2.33	0.62
11:A:1369:A:N7	23:M:2:GLY:N	2.47	0.62
14:D:65:GLU:OE1	14:D:66:LYS:N	2.33	0.61
11:A:614:C:OP1	46:q:62:ARG:NH2	2.33	0.61
31:V:71:ARG:NH2	31:V:148:ASN:OD1	2.33	0.61
54:z:122:CYS:SG	54:z:123:LYS:N	2.72	0.61
11:A:70:G:OP2	29:S:167:LYS:NZ	2.33	0.61
27:Q:25:ASN:ND2	27:Q:77:CYS:SG	2.74	0.61
1:0:869:MET:HB3	1:0:934:LEU:HD13	1.82	0.61
7:6:362:ASN:O	7:6:366:ASN:ND2	2.33	0.61
49:u:272:MET:SD	49:u:272:MET:N	2.66	0.61
11:A:1661:A:OP1	41:i:19:ARG:NH1	2.34	0.61
34:a:95:ARG:O	34:a:95:ARG:NE	2.30	0.61
47:r:24:VAL:HA	47:r:34:VAL:HG12	1.82	0.61
11:A:1260:A:H61	11:A:1617:G:H1'	1.66	0.61
52:x:28:MET:HE1	53:y:591:MET:HE2	1.81	0.61
50:v:209:GLN:NE2	52:x:21:VAL:O	2.31	0.61
26:P:31:CYS:HB2	26:P:93:LEU:HD12	1.81	0.61
29:S:159:ARG:NH2	29:S:171:THR:O	2.33	0.61
49:u:191:LYS:NZ	49:u:248:GLU:OE2	2.34	0.61
32:Y:130:LYS:NZ	32:Y:131:LYS:O	2.33	0.61
50:v:393:MET:SD	50:v:393:MET:N	2.74	0.61
11:A:798:G:OP1	11:A:798:G:N2	2.33	0.60
50:v:406:GLU:HA	50:v:409:LYS:HD2	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:6:344:LYS:HA	7:6:347:TRP:HD1	1.64	0.60
35:b:31:GLU:HA	35:b:34:MET:HG2	1.82	0.60
1:0:757:LYS:HB3	1:0:760:ARG:HB2	1.83	0.60
26:P:62:VAL:HG11	26:P:67:ASP:HB2	1.83	0.60
11:A:496:C:OP1	13:C:49:ARG:NH2	2.30	0.60
54:z:24:LYS:O	54:z:34:THR:HA	2.01	0.60
11:A:987:A:H2'	25:O:114:VAL:HG11	1.84	0.60
23:M:105:MET:HE2	24:N:39:TYR:HB3	1.84	0.60
49:u:315:MET:HA	49:u:318:MET:HG3	1.83	0.60
11:A:303:C:O2	28:R:184:ARG:NH1	2.35	0.60
31:V:102:LEU:HD11	38:e:100:VAL:HG21	1.84	0.60
49:u:414:VAL:O	49:u:425:GLN:NE2	2.35	0.60
53:y:831:LEU:HD11	53:y:846:ARG:HB3	1.84	0.60
1:0:888:ILE:HG22	1:0:949:VAL:HG22	1.84	0.60
11:A:528:A:N1	11:A:557:U:O2'	2.34	0.60
11:A:1669:G:OP1	40:h:79:ARG:NH1	2.35	0.60
25:O:137:LEU:HB3	25:O:172:MET:HE3	1.83	0.60
29:S:18:VAL:HG21	29:S:24:LEU:HD21	1.82	0.60
33:Z:62:LYS:O	33:Z:67:ARG:NH2	2.35	0.60
53:y:651:LEU:HD11	53:y:667:ARG:HD2	1.84	0.60
6:5:432:HIS:HB3	6:5:435:TYR:HB2	1.84	0.59
23:M:102:THR:HA	23:M:105:MET:HG3	1.84	0.59
53:y:548:MET:SD	53:y:572:HIS:ND1	2.76	0.59
53:y:687:LEU:HD12	53:y:733:MET:HE1	1.83	0.59
6:5:401:MET:HE1	6:5:412:LEU:HD22	1.84	0.59
11:A:531:A:N1	11:A:552:G:O6	2.35	0.59
11:A:1535:U:O4	31:V:159:ARG:NH1	2.35	0.59
18:H:65:GLN:OE1	18:H:72:ARG:NH1	2.34	0.59
45:o:250:THR:O	45:o:251:ARG:NH1	2.35	0.59
47:r:71:VAL:HG21	47:r:85:LEU:HD13	1.84	0.59
48:t:297:ARG:HB2	48:t:364:LEU:HD13	1.84	0.59
53:y:61:THR:HA	53:y:64:ILE:HD12	1.83	0.59
7:6:312:VAL:HG11	7:6:325:ILE:HG21	1.84	0.59
53:y:452:ASP:OD1	53:y:509:HIS:NE2	2.35	0.59
7:6:283:MET:HE1	7:6:340:ARG:HG3	1.84	0.59
11:A:838:G:O2'	11:A:840:C:OP2	2.21	0.59
11:A:468:A:OP1	29:S:74:ARG:NH1	2.36	0.59
47:r:189:VAL:O	47:r:240:THR:HA	2.02	0.59
49:u:502:ARG:HD2	53:y:850:THR:HG21	1.84	0.59
11:A:959:G:H22	11:A:963:A:H5"	1.67	0.59
14:D:151:LEU:O	14:D:155:LYS:NZ	2.35	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:y:627:LYS:HA	53:y:693:LEU:HD21	1.85	0.59
54:z:22:ILE:HG12	54:z:38:ASN:H	1.67	0.59
26:P:113:GLN:NE2	27:Q:44:ILE:O	2.33	0.59
47:r:21:MET:SD	47:r:21:MET:N	2.76	0.59
49:u:51:MET:HB3	49:u:89:VAL:HG21	1.83	0.59
11:A:641:A:OP1	14:D:40:LYS:NZ	2.35	0.59
36:c:87:LEU:HB2	36:c:101:PHE:HB2	1.84	0.59
6:5:457:LEU:HD11	6:5:492:VAL:HG12	1.85	0.59
52:x:34:SER:OG	52:x:57:ASN:OD1	2.21	0.59
52:x:434:ARG:HH12	52:x:438:CYS:HB2	1.66	0.59
1:0:1138:VAL:H	1:0:1161:ILE:HG23	1.67	0.58
11:A:1825:A:N6	46:q:65:LEU:O	2.36	0.58
14:D:152:ASP:N	14:D:152:ASP:OD1	2.36	0.58
7:6:327:GLN:O	7:6:330:ARG:NH2	2.36	0.58
37:d:50:GLU:OE1	37:d:51:ASN:ND2	2.36	0.58
49:u:468:GLU:HA	49:u:471:ILE:HD12	1.85	0.58
52:x:35:LYS:HA	53:y:590:LEU:HD13	1.84	0.58
47:r:54:ARG:HG3	47:r:55:ARG:N	2.17	0.58
11:A:1605:G:OP1	37:d:84:ARG:NH2	2.35	0.58
48:t:222:ILE:HD13	48:t:235:VAL:HA	1.85	0.58
11:A:1737:G:H1	11:A:1797:U:H3	1.51	0.58
53:y:844:MET:SD	53:y:844:MET:N	2.72	0.58
11:A:955:A:N1	11:A:968:U:O2'	2.36	0.58
11:A:1416:C:OP1	37:d:133:ARG:NH2	2.36	0.58
24:N:168:ALA:HB1	24:N:204:TYR:HB3	1.86	0.58
52:x:397:ASN:HA	52:x:452:VAL:O	2.04	0.58
6:5:494:LYS:NZ	6:5:521:PHE:O	2.36	0.58
11:A:553:U:O4	11:A:555:A:N6	2.36	0.58
11:A:1674:G:H4'	31:V:77:MET:HE1	1.85	0.58
1:0:892:GLY:HA2	1:0:942:LEU:H	1.69	0.58
11:A:919:A:H5"	19:I:16:LEU:HD12	1.85	0.58
11:A:1013:U:OP1	11:A:1129:G:O2'	2.22	0.58
11:A:1378:A:N6	24:N:136:GLU:OE2	2.37	0.58
20:J:23:ARG:NH1	21:K:19:ALA:O	2.37	0.58
53:y:793:PHE:HE1	53:y:825:MET:HG3	1.69	0.58
6:5:478:PHE:O	50:v:369:ARG:NH1	2.37	0.57
25:O:137:LEU:HG	25:O:215:VAL:HG22	1.86	0.57
35:b:44:ARG:O	35:b:47:ARG:C	2.47	0.57
18:H:64:CYS:SG	18:H:65:GLN:N	2.76	0.57
1:0:639:HIS:O	1:0:644:LYS:NZ	2.36	0.57
11:A:350:C:O2'	11:A:383:G:N1	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:T:83:LYS:HG2	30:T:96:LEU:HD21	1.86	0.57
47:r:72:VAL:HG23	47:r:90:VAL:HG22	1.85	0.57
48:t:149:ALA:HA	48:t:152:MET:HG2	1.86	0.57
49:u:233:ARG:NH1	49:u:255:ASP:OD2	2.37	0.57
11:A:1147:C:OP1	27:Q:6:ARG:NH1	2.36	0.57
1:0:1124:PRO:HA	1:0:1137:ILE:HA	1.85	0.57
36:c:217:MET:HG2	36:c:229:THR:HG23	1.86	0.57
1:0:633:ILE:HG12	1:0:699:LEU:HD23	1.86	0.57
11:A:126:G:OP2	29:S:195:LYS:NZ	2.33	0.57
11:A:1391:C:O2'	40:h:83:ARG:NH2	2.37	0.57
31:V:127:ARG:NH1	31:V:132:GLY:O	2.38	0.57
11:A:1300:U:O2	35:b:51:ARG:NH1	2.37	0.57
30:T:91:LEU:HD22	30:T:96:LEU:HD22	1.87	0.57
6:5:167:ILE:O	6:5:237:LYS:NZ	2.37	0.57
1:0:726:VAL:HG12	1:0:756:ASN:HD21	1.69	0.57
7:6:278:ARG:HD3	7:6:311:PHE:HE2	1.69	0.57
12:B:8:ARG:NH1	28:R:85:ALA:O	2.38	0.57
47:r:154:LYS:HD2	47:r:184:LEU:HD21	1.86	0.57
11:A:1759:G:N2	11:A:1772:C:OP2	2.37	0.57
1:0:1013:VAL:HG23	1:0:1039:VAL:HG11	1.86	0.56
6:5:183:LEU:HD22	6:5:269:LEU:HD13	1.85	0.56
24:N:76:VAL:HG12	24:N:123:VAL:HB	1.86	0.56
36:c:35:SER:OG	36:c:36:ARG:N	2.38	0.56
37:d:85:ASN:HB2	37:d:88:MET:HB2	1.87	0.56
11:A:516:A:N1	11:A:643:A:O2'	2.37	0.56
22:L:182:CYS:SG	22:L:183:LYS:N	2.78	0.56
6:5:195:GLN:HG2	6:5:421:LEU:HD21	1.85	0.56
11:A:1285:G:N1	43:m:57:ASP:OD2	2.37	0.56
11:A:1722:G:N2	11:A:1812:U:O2	2.35	0.56
30:T:114:MET:O	30:T:122:LYS:NZ	2.38	0.56
49:u:222:ASN:HB3	49:u:225:SER:HB3	1.87	0.56
53:y:673:PHE:HA	53:y:676:HIS:CD2	2.40	0.56
36:c:5:MET:SD	36:c:310:TRP:HB3	2.46	0.56
50:v:373:ASN:O	50:v:377:ASN:ND2	2.38	0.56
54:z:21:LEU:HG	54:z:42:VAL:HG21	1.87	0.56
36:c:124:SER:OG	36:c:126:ASP:OD1	2.23	0.56
54:z:26:GLU:OE1	54:z:33:LYS:NZ	2.37	0.56
11:A:688:U:OP1	17:G:116:ARG:NH1	2.39	0.56
11:A:996:A:OP1	19:I:114:ARG:NH2	2.39	0.56
11:A:1036:A:N3	11:A:1844:U:O2'	2.37	0.56
11:A:1488:C:O2'	11:A:1490:G:OP2	2.20	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:509:OMG:N3	11:A:509:OMG:HM23	2.21	0.56
11:A:962:A:H2'	47:r:54:ARG:HD2	1.86	0.56
11:A:1171:G:O2'	11:A:1187:G:O6	2.23	0.56
11:A:1754:G:OP1	11:A:1779:G:N2	2.38	0.56
39:f:110:ASP:OD1	39:f:113:ARG:NH1	2.38	0.56
11:A:1396:A:O2'	11:A:1398:G:N7	2.31	0.56
23:M:37:GLU:OE2	36:c:127:LYS:NZ	2.39	0.56
27:Q:45:VAL:HG11	27:Q:53:ILE:HG13	1.88	0.56
33:Z:76:ARG:O	33:Z:76:ARG:NH1	2.39	0.56
49:u:226:GLN:HE22	49:u:267:PRO:HB3	1.70	0.56
54:z:126:GLY:O	54:z:128:ARG:NH1	2.38	0.56
10:9:2:ARG:NE	11:A:1842:C:OP2	2.38	0.56
11:A:613:G:N2	11:A:626:G:OP1	2.39	0.56
11:A:1609:C:OP2	39:f:134:GLN:NE2	2.39	0.56
11:A:1507:G:H1'	42:k:89:LYS:CB	2.36	0.56
13:C:45:ILE:HA	13:C:61:VAL:HG11	1.87	0.56
35:b:145:LYS:HG3	46:q:67:LYS:HE3	1.86	0.56
49:u:526:MET:HA	49:u:529:VAL:HG12	1.87	0.56
54:z:55:LYS:NZ	54:z:59:CYS:SG	2.79	0.56
2:1:508:ASN:HD22	14:D:159:PHE:HD2	1.53	0.55
11:A:322:C:N4	11:A:323:C:O2	2.39	0.55
53:y:373:LYS:O	53:y:377:ASN:ND2	2.39	0.55
1:0:902:ARG:HE	1:0:936:LYS:HA	1.70	0.55
35:b:34:MET:HE1	35:b:45:LEU:HB2	1.88	0.55
49:u:329:ILE:O	49:u:367:ARG:NH1	2.39	0.55
11:A:912:C:HO2'	11:A:914:U:HO2'	1.55	0.55
42:k:105:TYR:OH	43:m:36:ARG:NH1	2.40	0.55
53:y:80:LEU:HD13	53:y:141:LEU:HD13	1.89	0.55
11:A:520:A:O2'	11:A:825:A:N3	2.35	0.55
25:O:38:MET:SD	25:O:38:MET:N	2.68	0.55
33:Z:193:ASP:OD1	33:Z:193:ASP:N	2.38	0.55
11:A:1007:C:O2'	19:I:104:ARG:NH2	2.40	0.55
14:D:170:PRO:O	14:D:175:ARG:NH1	2.39	0.55
21:K:51:LYS:NZ	21:K:76:ASP:OD2	2.37	0.55
11:A:67:C:N4	29:S:168:LYS:O	2.40	0.55
11:A:198:U:H1'	11:A:202:G:H1	1.71	0.55
11:A:1398:G:O2'	36:c:88:ARG:NH2	2.40	0.55
9:8:311:PRO:O	9:8:315:ASP:N	2.37	0.55
11:A:546:G:N2	11:A:547:G:O6	2.38	0.55
11:A:1825:A:OP1	46:q:66:ARG:NH1	2.39	0.55
1:0:724:ILE:HD11	1:0:838:LEU:HD11	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:0:1041:ILE:HB	1:0:1046:GLN:HE21	1.72	0.55
6:5:497:MET:HE1	6:5:515:SER:HB3	1.89	0.55
11:A:924:G:N2	11:A:1018:U:O2	2.32	0.55
48:t:23:LEU:HD11	48:t:28:LEU:HD11	1.89	0.55
49:u:340:ARG:HH12	53:y:722:GLU:HB3	1.71	0.55
11:A:922:A:OP2	20:J:28:ARG:NH1	2.40	0.55
53:y:410:ASP:OD1	53:y:485:ARG:NH2	2.40	0.55
11:A:379:C:O2	28:R:5:ARG:NE	2.39	0.54
35:b:131:PRO:HG2	39:f:151:LYS:HA	1.88	0.54
53:y:596:ASP:OD1	53:y:596:ASP:N	2.40	0.54
2:1:525:TYR:HE1	2:1:548:ARG:HD2	1.72	0.54
11:A:199:C:H2'	11:A:200:G:H21	1.71	0.54
11:A:636:C:H5"	16:F:96:GLN:HE22	1.71	0.54
35:b:64:LYS:NZ	35:b:91:GLY:O	2.40	0.54
40:h:51:LYS:HB2	40:h:90:ASP:HB2	1.89	0.54
11:A:1114:U:O2'	11:A:1119:A:N6	2.40	0.54
11:A:1754:G:OP1	11:A:1780:G:N2	2.40	0.54
33:Z:224:SER:HG	36:c:188:HIS:HD1	1.55	0.54
49:u:1:MET:HE1	49:u:4:TYR:HA	1.88	0.54
52:x:308:SER:OG	52:x:311:ASN:ND2	2.39	0.54
7:6:248:LYS:HZ2	7:6:285:MET:HG2	1.73	0.54
11:A:1231:C:O2'	11:A:1253:A:N6	2.41	0.54
11:A:1726:G:H1	11:A:1808:U:H3	1.54	0.54
52:x:289:LEU:HD23	52:x:316:ALA:HB1	1.88	0.54
53:y:740:ALA:O	53:y:744:MET:HB3	2.08	0.54
11:A:393:U:H3'	53:y:150:ARG:HH22	1.72	0.54
11:A:643:A:OP1	14:D:38:ARG:NH1	2.40	0.54
11:A:641:A:O2'	11:A:645:C:OP1	2.26	0.54
13:C:44:LEU:HD21	13:C:70:ILE:HG21	1.90	0.54
25:O:179:ASN:HB3	25:O:183:GLU:HB3	1.89	0.54
31:V:204:ARG:HH11	44:n:60:GLU:HG3	1.72	0.54
13:C:148:ARG:NH2	29:S:202:ASN:OD1	2.41	0.54
36:c:245:ARG:NH1	36:c:295:GLY:O	2.41	0.54
11:A:494:C:H41	11:A:509:OMG:HN22	1.55	0.54
11:A:1780:G:O6	11:A:1782:G:N2	2.41	0.54
29:S:57:ASP:OD1	29:S:58:LYS:N	2.41	0.54
53:y:788:LEU:HD11	53:y:818:VAL:HG23	1.90	0.54
1:0:1143:ILE:HG12	1:0:1157:VAL:HG12	1.90	0.54
11:A:370:G:O2'	28:R:10:LYS:NZ	2.40	0.54
25:O:72:ALA:HB3	26:P:128:ARG:HH12	1.73	0.54
51:w:73:A:OP2	51:w:74:C:N4	2.41	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:72:C:O2'	11:A:74:G:N2	2.42	0.53
11:A:746:C:N4	11:A:797:C:O2	2.41	0.53
11:A:962:A:C6	47:r:54:ARG:NH2	2.75	0.53
14:D:18:ARG:O	14:D:24:ARG:NH1	2.41	0.53
48:t:160:ALA:HB3	48:t:163:GLU:HG3	1.90	0.53
49:u:208:ILE:O	49:u:212:HIS:ND1	2.37	0.53
1:0:630:ARG:NH1	1:0:721:ASP:OD2	2.42	0.53
23:M:102:THR:HG22	24:N:48:ILE:HG21	1.90	0.53
29:S:32:MET:HE1	29:S:100:CYS:HA	1.88	0.53
29:S:74:ARG:NH2	29:S:94:ARG:O	2.41	0.53
29:S:181:THR:HG23	29:S:184:VAL:H	1.74	0.53
53:y:375:LYS:HA	53:y:378:ILE:HD12	1.90	0.53
53:y:436:GLN:HB2	53:y:439:ARG:HH21	1.73	0.53
1:0:877:LEU:O	1:0:928:ALA:N	2.41	0.53
11:A:1358:U:OP2	22:L:123:ARG:NH2	2.42	0.53
6:5:48:ILE:HB	6:5:53:LYS:HE3	1.90	0.53
7:6:312:VAL:HG11	7:6:325:ILE:HD13	1.91	0.53
11:A:1304:U:H4'	42:k:92:LYS:NZ	2.20	0.53
11:A:1644:C:H4'	32:Y:140:ARG:HB2	1.90	0.53
18:H:21:LYS:NZ	19:I:13:GLN:OE1	2.42	0.53
18:H:56:CYS:HB2	18:H:63:LEU:HD21	1.90	0.53
23:M:70:SER:OG	23:M:75:GLU:OE2	2.26	0.53
48:t:202:GLU:OE2	48:t:206:GLN:NE2	2.41	0.53
50:v:282:GLN:NE2	50:v:286:TYR:O	2.31	0.53
53:y:106:TYR:HA	53:y:109:ILE:HD12	1.91	0.53
17:G:69:LEU:HD22	17:G:96:ALA:HB2	1.89	0.53
23:M:53:TYR:CZ	23:M:57:LEU:HD21	2.44	0.53
24:N:51:LEU:HA	24:N:54:THR:HG22	1.91	0.53
11:A:1597:C:OP2	38:e:85:ARG:NH2	2.42	0.53
24:N:108:PHE:HB3	24:N:140:VAL:HG11	1.89	0.53
25:O:136:ARG:HB2	25:O:218:LEU:HD11	1.90	0.53
1:0:1166:GLY:O	54:z:15:ARG:NH1	2.41	0.53
11:A:1124:C:H5"	25:O:150:ILE:HG12	1.90	0.53
6:5:302:LYS:NZ	6:5:312:GLN:OE1	2.41	0.53
11:A:929:G:N2	11:A:1013:U:O2	2.42	0.53
24:N:173:LEU:O	24:N:177:MET:HG3	2.09	0.53
1:0:1016:LYS:HG2	1:0:1020:LYS:HE3	1.91	0.53
6:5:559:LYS:HG3	6:5:560:MET:SD	2.49	0.53
11:A:820:U:OP2	14:D:83:ARG:NH1	2.42	0.53
30:T:27:VAL:HG12	30:T:29:HIS:HD2	1.73	0.53
33:Z:74:GLN:NE2	33:Z:79:PHE:O	2.40	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:t:128:ARG:NH1	48:t:243:ILE:O	2.41	0.53
50:v:298:CYS:HA	50:v:301:VAL:HG12	1.91	0.53
1:0:1103:ASN:HB3	1:0:1108:ILE:HG21	1.90	0.53
11:A:1658:G:OP2	11:A:1660:C:N4	2.42	0.53
28:R:110:ARG:NH2	28:R:166:PHE:O	2.42	0.53
39:f:49:ASP:OD1	39:f:49:ASP:N	2.42	0.53
1:0:660:GLU:OE2	1:0:914:ARG:NH1	2.42	0.52
6:5:467:TYR:HD1	6:5:470:MET:HE3	1.74	0.52
11:A:878:G:H1	11:A:908:A:H61	1.55	0.52
6:5:191:ILE:HG21	6:5:279:ARG:HE	1.73	0.52
11:A:84:A:N3	11:A:150:A:O2'	2.42	0.52
11:A:1142:G:OP1	22:L:187:ARG:NH1	2.42	0.52
11:A:1760:G:H21	11:A:1772:C:H5"	1.74	0.52
12:B:135:SER:O	12:B:139:ARG:NH1	2.42	0.52
47:r:104:LYS:HD2	47:r:150:TYR:CZ	2.44	0.52
50:v:398:VAL:HA	53:y:846:ARG:HH21	1.73	0.52
1:0:845:MET:O	1:0:848:LYS:NZ	2.42	0.52
1:0:1125:MET:SD	1:0:1126:CYS:N	2.82	0.52
11:A:588:G:OP2	11:A:588:G:N2	2.37	0.52
11:A:721:G:H21	11:A:723:C:H41	1.55	0.52
53:y:504:LEU:HD22	53:y:564:ILE:HG12	1.90	0.52
1:0:1165:PRO:HB3	54:z:15:ARG:HG2	1.92	0.52
11:A:925:G:OP1	19:I:121:ARG:NH2	2.42	0.52
11:A:1217:A:H2'	11:A:1218:C:H6	1.74	0.52
26:P:93:LEU:HD23	26:P:124:MET:HE2	1.92	0.52
42:k:86:THR:HG22	42:k:88:PRO:HD2	1.91	0.52
6:5:327:ARG:HH22	6:5:496:LYS:HG2	1.75	0.52
11:A:380:G:OP1	28:R:31:ARG:NH1	2.36	0.52
25:O:190:PRO:HA	49:u:14[B]:ARG:HH21	1.74	0.52
47:r:27:ILE:HD11	47:r:63:ILE:HG21	1.91	0.52
11:A:17:C:O2'	11:A:1194:A:N1	2.38	0.52
11:A:508:A:H2'	11:A:509:OMG:H5'	1.91	0.52
31:V:27:ASP:O	31:V:29:GLN:NE2	2.43	0.52
46:q:98:ASP:HA	46:q:101:ARG:HE	1.74	0.52
11:A:1228:A:H2'	11:A:1229:G:C8	2.45	0.52
11:A:1277:C:H2'	11:A:1278:A:H8	1.74	0.52
22:L:104:ASP:HB3	22:L:130:ILE:HG22	1.92	0.52
7:6:297:MET:O	7:6:301:LEU:HB2	2.09	0.52
11:A:1102:G:OP1	25:O:151:ARG:NH2	2.43	0.52
13:C:112:HIS:NE2	13:C:237:SER:O	2.43	0.52
21:K:67:ASP:OD2	21:K:71:ARG:NH1	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
29:S:58:LYS:HA	29:S:107:SER:HB2	1.90	0.52
43:m:18:LEU:HD22	43:m:77:ILE:HG21	1.91	0.52
53:y:104:ARG:HH11	53:y:108:ARG:HG3	1.75	0.52
53:y:664:LYS:HD2	53:y:667:ARG:HH21	1.75	0.52
7:6:249:LEU:HD11	7:6:301:LEU:HD23	1.92	0.52
7:6:258:ASN:OD1	7:6:259:ASN:N	2.43	0.52
23:M:82:ASP:O	24:N:85:ARG:NH2	2.43	0.52
36:c:72:SER:OG	36:c:74:ASP:OD1	2.22	0.52
1:0:1170:LYS:HB3	1:0:1175:HIS:HB2	1.91	0.52
6:5:148:PRO:HG2	6:5:153:ARG:HE	1.73	0.52
11:A:166:A2M:H2'	11:A:167:G:H8	1.75	0.52
11:A:454:U:O2'	29:S:94:ARG:NH2	2.43	0.52
11:A:885:U:H3	11:A:901:G:H1	1.58	0.52
11:A:1570:G:N7	37:d:97:LYS:NZ	2.57	0.52
48:t:300:ILE:HB	48:t:312:LYS:HB2	1.92	0.52
50:v:419:ALA:HB3	50:v:420:MET:HE2	1.92	0.52
1:0:1109:VAL:HG12	1:0:1158:CYS:HB2	1.92	0.51
10:9:11:ARG:NH2	11:A:1183:A:O3'	2.41	0.51
11:A:484:A2M:O5'	11:A:484:A2M:H8	2.10	0.51
11:A:1092:G:H2'	11:A:1093:A:H8	1.75	0.51
11:A:1113:A:O2'	11:A:1114:U:O4'	2.25	0.51
11:A:1143:A:OP2	22:L:187:ARG:NH2	2.43	0.51
26:P:101:GLY:HA3	26:P:134:PRO:HG2	1.90	0.51
11:A:539:C:N3	11:A:545:A:N6	2.58	0.51
11:A:1550:G:O2'	11:A:1558:C:O2	2.25	0.51
48:t:51:ALA:O	48:t:191:LYS:NZ	2.39	0.51
52:x:207:ASP:O	52:x:468:THR:OG1	2.28	0.51
11:A:649:U:H2'	11:A:650:A:H8	1.75	0.51
25:O:123:ALA:HB3	25:O:168:MET:HE2	1.91	0.51
33:Z:163:PRO:O	33:Z:167:TYR:HB2	2.10	0.51
47:r:115:VAL:HA	47:r:118:VAL:HG22	1.92	0.51
50:v:315:CYS:O	50:v:319:LEU:HB2	2.10	0.51
1:0:1003:VAL:HG11	1:0:1069:PHE:HZ	1.74	0.51
11:A:201:C:H5"	11:A:202:G:H21	1.75	0.51
11:A:1024:A:OP2	19:I:124:ARG:NH1	2.37	0.51
11:A:1757:G:HO2'	11:A:1776:G:H1	1.58	0.51
21:K:44:GLY:O	24:N:191:ARG:NH2	2.42	0.51
27:Q:32:LYS:HZ2	27:Q:37:LYS:HE2	1.75	0.51
33:Z:193:ASP:OD2	33:Z:199:GLY:N	2.42	0.51
11:A:535:G:N2	11:A:536:A:N7	2.58	0.51
11:A:874:G:H2'	11:A:875:A:H8	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:B:135:SER:OG	12:B:136:LYS:N	2.44	0.51
24:N:184:ARG:NH1	24:N:191:ARG:O	2.44	0.51
49:u:109:GLN:HA	49:u:112:VAL:HG22	1.92	0.51
49:u:239:SER:O	49:u:243:MET:HG2	2.11	0.51
52:x:452:VAL:HG22	52:x:465:ILE:HG22	1.93	0.51
11:A:689:U:H2'	11:A:690:G:C2	2.46	0.51
11:A:839:C:H41	30:T:10:ARG:HA	1.74	0.51
11:A:963:A:H61	11:A:1065:G:H1'	1.75	0.51
11:A:1528:G:O2'	11:A:1666:C:OP1	2.25	0.51
6:5:328:ARG:NH1	6:5:508:ALA:O	2.43	0.51
11:A:871:U:OP2	19:I:76:LYS:NZ	2.38	0.51
17:G:20:GLU:OE2	17:G:24:SER:OG	2.29	0.51
25:O:82:ARG:NH2	25:O:191:ASP:OD1	2.44	0.51
30:T:81:TYR:O	30:T:85:ASN:ND2	2.40	0.51
35:b:56:LEU:HD23	35:b:83:MET:HE3	1.92	0.51
53:y:559:ASP:OD2	53:y:565:ARG:NH1	2.44	0.51
1:0:858:ALA:HB2	1:0:877:LEU:HD23	1.92	0.51
11:A:1465:A:OP1	23:M:56:HIS:NE2	2.43	0.51
24:N:84:GLN:HG3	24:N:100:ALA:HB1	1.93	0.51
34:a:6:LYS:NZ	34:a:7:ASN:OD1	2.44	0.51
7:6:325:ILE:HG22	7:6:332:VAL:HG12	1.92	0.51
11:A:156:G:OP1	29:S:2:LYS:NZ	2.38	0.51
11:A:860:G:N2	20:J:107:SER:OG	2.44	0.51
11:A:1252:C:N4	32:Y:146:ARG:O	2.42	0.51
11:A:1403:C:N4	11:A:1433:C:OP1	2.44	0.51
11:A:1566:G:OP2	37:d:102:ARG:NH2	2.44	0.51
35:b:41:GLN:NE2	35:b:113:GLY:O	2.44	0.51
37:d:9:VAL:HG21	37:d:138:VAL:HG13	1.93	0.51
42:k:89:LYS:C	42:k:91:ASN:H	2.19	0.51
49:u:438:ARG:HD3	49:u:510:HIS:CE1	2.45	0.51
50:v:254:LEU:HB2	50:v:286:TYR:HE2	1.75	0.51
50:v:261:VAL:HG11	50:v:274:LEU:HD13	1.92	0.51
50:v:347:ILE:CD1	53:y:827:ILE:HG22	2.26	0.51
50:v:362:MET:HE1	50:v:367:ALA:HB2	1.93	0.51
1:0:673:VAL:HB	1:0:698:MET:HB3	1.91	0.51
1:0:1103:ASN:HB3	1:0:1108:ILE:HG13	1.93	0.51
7:6:249:LEU:H	7:6:277:MET:HE2	1.75	0.51
11:A:734:C:O2'	11:A:736:C:N4	2.44	0.51
11:A:1652:G:N2	11:A:1672:U:O2	2.40	0.51
48:t:12:GLN:O	48:t:38:ARG:NH2	2.44	0.51
49:u:59:VAL:HG21	49:u:96:MET:HE1	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:u:384:VAL:HB	49:u:387:VAL:HG22	1.93	0.51
1:0:1187:SER:N	1:0:1190:SER:OG	2.43	0.50
2:1:472:TRP:HZ3	2:1:498:LEU:HD12	1.75	0.50
11:A:64:A:N6	11:A:83:A:OP2	2.43	0.50
11:A:639:C:H2'	11:A:640:A:H8	1.76	0.50
20:J:94:LEU:O	22:L:183:LYS:NZ	2.41	0.50
6:5:402:GLN:OE1	50:v:379:ARG:NH1	2.38	0.50
11:A:962:A:C4	47:r:54:ARG:NH1	2.78	0.50
11:A:1307:U:O2'	42:k:135:HIS:ND1	2.36	0.50
11:A:1345:G:OP1	11:A:1688:C:O2'	2.29	0.50
11:A:1738:C:OP1	29:S:92:ARG:NH1	2.42	0.50
13:C:104:ASP:HB3	13:C:110:ALA:HB2	1.92	0.50
53:y:762:ASN:OD1	53:y:776:ARG:NH1	2.45	0.50
1:0:948:LEU:HB3	1:0:959:LEU:HD13	1.92	0.50
11:A:1247:C:OP1	46:q:17:ASN:ND2	2.42	0.50
24:N:77:ILE:HG12	24:N:99:ILE:HB	1.93	0.50
35:b:72:LYS:HD2	35:b:93:MET:HE3	1.93	0.50
43:m:22:LEU:HD22	43:m:89:VAL:HG12	1.94	0.50
47:r:180:ILE:O	47:r:184:LEU:HB3	2.11	0.50
53:y:504:LEU:HD12	53:y:507:ILE:HD11	1.92	0.50
1:0:1012:PRO:HA	1:0:1039:VAL:HG13	1.93	0.50
2:1:530:VAL:HB	2:1:543:ASN:HB3	1.93	0.50
11:A:551:U:H5'	16:F:117:VAL:HG11	1.93	0.50
11:A:603:C:N4	11:A:620:G:O6	2.43	0.50
11:A:962:A:C4	47:r:54:ARG:CZ	2.94	0.50
49:u:324:LEU:O	49:u:328:SER:OG	2.23	0.50
53:y:146:ARG:O	53:y:150:ARG:NE	2.44	0.50
1:0:1024:MET:HA	1:0:1024:MET:HE3	1.93	0.50
11:A:1122:A:N3	25:O:146:ARG:NH1	2.59	0.50
14:D:94:LEU:HA	14:D:97:ILE:HD12	1.94	0.50
15:E:51:VAL:HG12	15:E:72:VAL:HG22	1.94	0.50
49:u:135:GLU:OE2	53:y:465:HIS:ND1	2.45	0.50
50:v:255:ARG:NH2	50:v:322:ASP:OD2	2.44	0.50
1:0:725:LEU:HD11	1:0:737:THR:HG23	1.93	0.50
1:0:1141:ILE:HG23	1:0:1159:VAL:HG12	1.93	0.50
6:5:383:ASP:HA	6:5:545:ARG:HH21	1.76	0.50
11:A:490:C:O2'	11:A:574:A:N1	2.42	0.50
11:A:681:U:O2'	11:A:1160:U:OP1	2.30	0.50
11:A:1589:A:N3	11:A:1653:U:O2'	2.42	0.50
11:A:1839:U:O4'	11:A:1863:A:N6	2.40	0.50
31:V:186:ASN:O	31:V:191:LYS:NZ	2.44	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:r:225:ILE:HA	47:r:238:THR:O	2.12	0.50
49:u:344:MET:SD	49:u:345:ASP:N	2.85	0.50
8:7:-18:G:H2'	8:7:-17:A:C5	2.47	0.50
11:A:1757:G:O2'	11:A:1776:G:N1	2.45	0.50
42:k:133:ALA:HB3	42:k:140:TYR:O	2.11	0.50
54:z:50:PRO:HB2	54:z:74:TYR:CZ	2.47	0.50
6:5:154:PHE:HD1	6:5:221:ILE:HG21	1.77	0.50
6:5:457:LEU:HD13	6:5:493:PHE:HA	1.94	0.50
11:A:71:G:O6	29:S:170:ARG:NH1	2.44	0.50
11:A:1129:G:H3'	11:A:1130:G:H21	1.76	0.50
11:A:1172:U:O2	11:A:1188:A:N7	2.45	0.50
11:A:1273:C:O2	11:A:1508:A:N6	2.44	0.50
12:B:49:GLU:OE1	12:B:49:GLU:N	2.44	0.50
25:O:175:GLU:HB3	25:O:187:LYS:HD3	1.93	0.50
26:P:145:GLY:O	27:Q:22:ARG:NH2	2.37	0.50
28:R:3:ILE:O	28:R:30:GLY:N	2.44	0.50
33:Z:195:THR:O	33:Z:197:LYS:NZ	2.45	0.50
36:c:48:ASP:OD1	36:c:50:THR:OG1	2.27	0.50
49:u:336:THR:HB	53:y:746:MET:HE1	1.93	0.50
53:y:586:ARG:HA	53:y:589:MET:HG3	1.93	0.50
1:0:635:CYS:HB2	1:0:720:CYS:HB3	1.93	0.50
1:0:1055:ARG:NH1	1:0:1056:ILE:O	2.44	0.50
6:5:503:THR:OG1	6:5:514:GLN:NE2	2.39	0.50
11:A:897:U:N3	11:A:899:U:O4	2.44	0.50
11:A:1101:U:H2'	11:A:1102:G:H8	1.77	0.50
13:C:37:LYS:N	13:C:40:GLU:OE1	2.45	0.50
50:v:401:TYR:HB2	53:y:846:ARG:HH12	1.76	0.50
6:5:283:LEU:HD22	6:5:421:LEU:HD23	1.95	0.49
11:A:844:U:H2'	11:A:845:G:H8	1.77	0.49
11:A:1606:G:N2	11:A:1632:G:O2'	2.45	0.49
30:T:78:SER:OG	30:T:80:ASP:OD1	2.26	0.49
35:b:139:SER:HB3	39:f:151:LYS:HE3	1.93	0.49
53:y:468:GLU:O	53:y:472:HIS:ND1	2.44	0.49
54:z:35:VAL:HG22	54:z:75:ILE:HG12	1.94	0.49
1:0:1103:ASN:ND2	51:w:74:C:O2	2.45	0.49
2:1:467:ILE:HA	2:1:483:VAL:HG22	1.94	0.49
6:5:457:LEU:HB3	6:5:493:PHE:HD1	1.76	0.49
43:m:18:LEU:HD21	43:m:51:VAL:HG21	1.94	0.49
48:t:185:ILE:HD12	48:t:216:ALA:HB2	1.94	0.49
11:A:813:A:C2	11:A:814:5MU:H1'	2.47	0.49
11:A:1083:A:N7	11:A:1841:C:O2'	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1204:A:O2'	11:A:1700:C:OP2	2.24	0.49
11:A:1283:C:O2'	11:A:1313:A:N1	2.45	0.49
24:N:77:ILE:HD12	24:N:122:LEU:HD11	1.95	0.49
26:P:46:ASP:OD2	26:P:48:SER:OG	2.29	0.49
52:x:291:VAL:HG22	52:x:431:LYS:HZ3	1.77	0.49
53:y:568:ALA:O	53:y:572:HIS:CB	2.60	0.49
8:7:13:A:OP1	33:Z:117:ARG:NH1	2.45	0.49
9:8:167:TYR:HA	9:8:200:GLU:HA	1.95	0.49
11:A:562:U:H2'	11:A:563:G:C8	2.48	0.49
11:A:1244:U:H2'	11:A:1245:G:H8	1.77	0.49
24:N:69:GLU:OE1	24:N:120:ARG:NH1	2.38	0.49
24:N:147:LEU:O	24:N:165:ASN:ND2	2.45	0.49
32:Y:8:GLN:HG3	32:Y:27:ARG:HH21	1.77	0.49
36:c:62:HIS:NE2	36:c:80:SER:OG	2.33	0.49
1:0:646:LYS:HD3	55:0:2001:GTP:C8	2.47	0.49
11:A:367:U:O2	53:y:143:GLN:NE2	2.46	0.49
11:A:831:G:N7	30:T:11:LYS:NZ	2.46	0.49
9:8:155:ILE:O	9:8:159:GLN:HA	2.12	0.49
11:A:28:U:H2'	11:A:29:G:H8	1.78	0.49
11:A:450:C:OP1	13:C:3:ARG:NH1	2.46	0.49
11:A:1398:G:H22	11:A:1448:A:H2	1.60	0.49
43:m:47:ALA:HA	43:m:112:LYS:HA	1.93	0.49
49:u:198:CYS:SG	49:u:202:ARG:NH2	2.70	0.49
50:v:291:PRO:HB2	50:v:315:CYS:HB3	1.94	0.49
50:v:362:MET:HE3	50:v:370:TRP:HE1	1.76	0.49
52:x:311:ASN:HA	52:x:314:MET:HG3	1.94	0.49
21:K:56:CYS:SG	21:K:57:GLY:N	2.84	0.49
30:T:52:PRO:HA	30:T:55:ILE:HD12	1.95	0.49
6:5:220:LYS:O	6:5:223:ASN:ND2	2.35	0.49
6:5:342:TYR:O	6:5:346:THR:OG1	2.24	0.49
11:A:441:C:O2'	29:S:92:ARG:NH2	2.45	0.49
11:A:507:G:OP2	30:T:104:ARG:NH2	2.45	0.49
11:A:821:G:OP2	14:D:83:ARG:NH2	2.44	0.49
24:N:40:LYS:NZ	24:N:41:ARG:O	2.46	0.49
32:Y:58:LEU:HD22	32:Y:108:ILE:HG22	1.95	0.49
42:k:132:MET:HG2	42:k:139:HIS:CE1	2.47	0.49
49:u:19:LEU:HD11	49:u:53:LYS:HD2	1.94	0.49
53:y:788:LEU:HD12	53:y:813:LEU:HD12	1.95	0.49
1:0:1118:GLN:HA	1:0:1151:ALA:HB3	1.94	0.49
11:A:692:G:H2'	11:A:693:A:C4	2.48	0.49
26:P:100:THR:HG21	26:P:104:ARG:HD2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:y:757:ILE:HD11	53:y:776:ARG:HD2	1.94	0.49
11:A:189:U:OP1	28:R:148:LYS:NZ	2.45	0.49
11:A:1220:A:N3	11:A:1677:U:O2'	2.39	0.49
48:t:24:ASP:OD1	48:t:24:ASP:N	2.46	0.49
1:0:729:ILE:HD13	1:0:761:LEU:HD11	1.94	0.48
1:0:1119:VAL:HG22	1:0:1151:ALA:HB2	1.95	0.48
6:5:544:ILE:HA	6:5:547:ILE:HD12	1.94	0.48
11:A:453:C:O2'	29:S:92:ARG:O	2.26	0.48
11:A:962:A:H5"	26:P:66:ARG:HG3	1.94	0.48
43:m:33:ARG:HD2	43:m:91:LEU:HD23	1.95	0.48
2:1:520:GLN:HG2	2:1:525:TYR:H	1.77	0.48
11:A:928:G:H2'	11:A:929:G:C8	2.48	0.48
11:A:943:U:H3	26:P:138:ASP:HB2	1.78	0.48
11:A:1446:A:H5"	40:h:58:THR:HG23	1.93	0.48
25:O:175:GLU:O	25:O:179:ASN:ND2	2.46	0.48
52:x:371:LEU:HB3	52:x:373:VAL:HG23	1.95	0.48
53:y:801:SER:HA	53:y:842:VAL:HA	1.95	0.48
1:0:1018:VAL:HA	1:0:1034:ILE:HD11	1.94	0.48
23:M:89:SER:HB3	24:N:198:MET:SD	2.53	0.48
50:v:212:THR:OG1	50:v:247:GLN:OE1	2.22	0.48
1:0:631:ALA:HB3	1:0:928:ALA:HB1	1.94	0.48
2:1:571:GLU:HG2	2:1:621:GLN:HA	1.95	0.48
11:A:1245:G:O2'	11:A:1492:U:OP1	2.27	0.48
11:A:1292:C:H42	42:k:138:ARG:HH21	1.61	0.48
32:Y:32:ILE:HG21	32:Y:39:LEU:HD12	1.94	0.48
32:Y:104:SER:O	32:Y:108:ILE:HG12	2.13	0.48
36:c:20:GLN:HG2	36:c:69:VAL:H	1.79	0.48
42:k:132:MET:HG2	42:k:139:HIS:ND1	2.29	0.48
49:u:199:ASP:HA	49:u:202:ARG:HG2	1.95	0.48
50:v:404:VAL:HG13	50:v:407:LYS:HE3	1.95	0.48
53:y:325:THR:OG1	53:y:364:ASN:OD1	2.26	0.48
53:y:433:ASN:OD1	53:y:433:ASN:N	2.45	0.48
11:A:383:G:O2'	12:B:133:PRO:O	2.31	0.48
11:A:1010:G:H2'	11:A:1011:A:C8	2.49	0.48
11:A:1010:G:H2'	11:A:1011:A:H8	1.78	0.48
11:A:1015:U:O2'	19:I:55:ARG:NH1	2.46	0.48
11:A:1756:C:H42	11:A:1776:G:H2'	1.77	0.48
14:D:127:ARG:HD3	16:F:105:ARG:HD3	1.96	0.48
22:L:267:GLN:NE2	24:N:69:GLU:OE2	2.36	0.48
33:Z:103:GLU:OE1	33:Z:106:ARG:NH1	2.46	0.48
49:u:257:HIS:ND1	49:u:358:LEU:O	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
52:x:381:MET:SD	52:x:391:ILE:HD13	2.53	0.48
9:8:236:SER:O	9:8:241:LYS:N	2.47	0.48
11:A:531:A:H1'	11:A:554:A:H61	1.78	0.48
11:A:1352:G:H1	11:A:1359:U:H3	1.61	0.48
18:H:46:VAL:HG22	18:H:54:VAL:HG11	1.96	0.48
34:a:55:ARG:NH1	34:a:78:TYR:OH	2.45	0.48
52:x:304:ASN:OD1	52:x:311:ASN:ND2	2.43	0.48
4:3:180:SER:O	4:3:188:PHE:N	2.45	0.48
11:A:678:U:OP2	11:A:1026:C:N4	2.34	0.48
11:A:801:U:O4	17:G:106:ARG:NH1	2.46	0.48
13:C:44:LEU:HD13	13:C:72:ILE:HD11	1.95	0.48
25:O:60:ASP:OD1	25:O:61:GLY:N	2.47	0.48
48:t:248:ARG:NH1	48:t:284:LEU:O	2.47	0.48
49:u:111:MET:SD	49:u:111:MET:N	2.87	0.48
49:u:246:TRP:NE1	53:y:731:GLU:OE2	2.47	0.48
53:y:698:MET:SD	53:y:698:MET:N	2.86	0.48
6:5:287:TYR:HD2	6:5:325:MET:HE3	1.78	0.48
11:A:154:U:O2	29:S:4:ASN:ND2	2.38	0.48
14:D:30:LYS:HD2	16:F:112:TYR:HE1	1.79	0.48
39:f:86:ARG:NH2	39:f:89:ASP:OD1	2.45	0.48
2:1:528:VAL:HB	2:1:545:GLU:HB3	1.96	0.48
11:A:691:G:H1'	11:A:692:G:H5'	1.95	0.48
11:A:930:C:O2'	11:A:1104:G:OP1	2.27	0.48
17:G:31:GLU:HA	17:G:40:LEU:HD23	1.95	0.48
36:c:191:HIS:CG	36:c:195:LEU:HD21	2.47	0.48
49:u:52:LEU:HD22	49:u:89:VAL:HG23	1.96	0.48
49:u:384:VAL:O	49:u:388:LYS:N	2.42	0.48
49:u:498:ASN:HA	49:u:518:GLN:HE22	1.79	0.48
48:t:139:ASP:HB3	48:t:169:GLN:HE21	1.79	0.48
49:u:465:PHE:CD1	53:y:810:MET:HB3	2.49	0.48
54:z:32:ILE:O	54:z:77:ASN:ND2	2.47	0.48
1:0:1142:GLU:HB3	1:0:1147:GLN:HA	1.96	0.47
11:A:868:G:OP2	11:A:868:G:N2	2.32	0.47
11:A:951:C:O2'	26:P:50:LYS:NZ	2.44	0.47
11:A:1285:G:N7	43:m:107:SER:OG	2.35	0.47
38:e:70:PRO:HA	38:e:73:VAL:HG12	1.96	0.47
47:r:153:PHE:HB3	47:r:180:ILE:HD11	1.96	0.47
52:x:394:LYS:HG3	52:x:449:LEU:HD23	1.96	0.47
11:A:1521:C:OP2	39:f:136:THR:OG1	2.31	0.47
48:t:177:ILE:HG23	48:t:182:LEU:HB2	1.96	0.47
11:A:1543:U:OP1	37:d:62:ARG:NH1	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1757:G:H1'	11:A:1776:G:H22	1.80	0.47
12:B:65:ASN:O	12:B:132:ARG:NH2	2.40	0.47
18:H:65:GLN:HE21	53:y:343:LYS:HA	1.79	0.47
48:t:153:ASP:HA	48:t:182:LEU:HD22	1.95	0.47
50:v:402:GLN:O	50:v:406:GLU:HG2	2.14	0.47
11:A:126:G:OP1	29:S:198:ARG:NE	2.44	0.47
11:A:1146:C:O2'	11:A:1150:A:N1	2.45	0.47
11:A:1854:U:H2'	11:A:1855:G:H8	1.79	0.47
22:L:107:LEU:HD23	22:L:209:VAL:HG13	1.95	0.47
25:O:67:PHE:O	25:O:85:LYS:HA	2.14	0.47
1:0:1103:ASN:H	1:0:1108:ILE:HG21	1.78	0.47
6:5:547:ILE:HA	6:5:550:PHE:CE1	2.49	0.47
8:7:6:A:N6	46:q:7:LYS:O	2.44	0.47
11:A:96:C:O2	11:A:473:A:O2'	2.32	0.47
11:A:323:C:O2'	11:A:328:U:O4	2.26	0.47
11:A:1084:A:OP1	11:A:1858:G:O2'	2.24	0.47
11:A:1091:C:O2'	20:J:2:VAL:N	2.44	0.47
42:k:107:LYS:HA	42:k:117:LEU:HD12	1.97	0.47
47:r:30:MET:SD	47:r:30:MET:N	2.88	0.47
49:u:321:ARG:NE	49:u:423:GLU:HG3	2.29	0.47
52:x:199:LEU:O	52:x:335:TYR:N	2.47	0.47
6:5:328:ARG:NH2	6:5:509:LEU:O	2.48	0.47
11:A:145:G:H2'	11:A:146:G:C8	2.50	0.47
11:A:570:C:O2'	30:T:34:THR:O	2.29	0.47
11:A:749:U:O4	11:A:750:C:N4	2.48	0.47
11:A:752:G:N2	11:A:793:G:O2'	2.44	0.47
31:V:100:ILE:HA	31:V:178:ILE:HD11	1.96	0.47
31:V:114:ASN:O	31:V:118:ASN:ND2	2.48	0.47
36:c:5:MET:HE2	36:c:5:MET:HA	1.97	0.47
47:r:157:VAL:HG11	47:r:184:LEU:HD22	1.95	0.47
49:u:562:ARG:HD2	49:u:566:GLN:HB2	1.95	0.47
1:0:1104:SER:HB3	1:0:1172:PHE:HB2	1.96	0.47
6:5:541:ASP:O	6:5:545:ARG:HG2	2.15	0.47
11:A:111:A:O3'	12:B:69:ARG:NH1	2.47	0.47
11:A:982:G:H2'	11:A:983:A:C8	2.49	0.47
11:A:1086:G:OP2	27:Q:12:LYS:NZ	2.46	0.47
11:A:1757:G:H8	11:A:1777:G:H22	1.60	0.47
17:G:84:GLU:O	17:G:88:SER:HA	2.14	0.47
22:L:185:THR:HG22	22:L:194:ARG:HA	1.97	0.47
25:O:190:PRO:HB2	49:u:18:PHE:CZ	2.49	0.47
36:c:57:ARG:HD3	36:c:95:GLY:HA3	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:r:46:ILE:HG12	47:r:85:LEU:HB2	1.97	0.47
50:v:264:ASN:ND2	50:v:266:ASP:OD1	2.48	0.47
11:A:196:C:O2	11:A:203:G:O2'	2.32	0.47
11:A:1172:U:H2'	11:A:1173:A:H8	1.79	0.47
31:V:126:THR:HG1	44:n:26:GLN:HE21	1.60	0.47
47:r:203:GLU:HA	48:t:342:LYS:HD3	1.97	0.47
49:u:485:ASP:OD1	53:y:801:SER:OG	2.30	0.47
53:y:589:MET:SD	53:y:590:LEU:HG	2.55	0.47
53:y:643:LYS:O	53:y:648:GLN:N	2.48	0.47
53:y:780:VAL:HA	53:y:783:ILE:HG12	1.96	0.47
1:0:636:VAL:O	1:0:703:THR:OG1	2.33	0.47
1:0:729:ILE:HD12	1:0:755:LEU:HD13	1.97	0.47
11:A:1092:G:OP1	19:I:2:GLY:N	2.48	0.47
11:A:1563:G:OP1	37:d:121:ARG:NH1	2.48	0.47
27:Q:44:ILE:HG23	27:Q:67:LEU:HD23	1.97	0.47
50:v:399:SER:HA	50:v:403:GLN:HB2	1.97	0.47
11:A:830:A:OP2	11:A:846:G:N2	2.46	0.47
13:C:54:TYR:O	30:T:15:ASN:ND2	2.47	0.47
25:O:107:ARG:NH1	26:P:133:THR:O	2.29	0.47
48:t:136:PRO:HG3	48:t:141:LEU:HD23	1.96	0.47
48:t:298:PRO:HG2	48:t:356:GLN:HA	1.97	0.47
11:A:1326:U:O4	41:i:28:HIS:ND1	2.48	0.46
44:n:52:GLU:O	52:x:416:GLN:NE2	2.45	0.46
50:v:254:LEU:O	50:v:258:THR:HG23	2.15	0.46
11:A:604:A:N3	11:A:639:C:O2'	2.43	0.46
23:M:101:ASP:HB3	24:N:40:LYS:HD3	1.96	0.46
31:V:19:LEU:HD21	31:V:69:VAL:HG21	1.97	0.46
49:u:228:MET:HA	49:u:231:GLU:HG3	1.96	0.46
53:y:445:LEU:HA	53:y:448:VAL:HG22	1.96	0.46
6:5:136:TYR:CZ	6:5:140:ILE:HD11	2.49	0.46
6:5:376:THR:HG21	6:5:398:MET:SD	2.56	0.46
11:A:94:G:O2'	11:A:508:A:O2'	2.30	0.46
11:A:197:U:OP2	11:A:203:G:N2	2.48	0.46
11:A:943:U:O2'	26:P:135:ILE:O	2.30	0.46
11:A:1617:G:N1	11:A:1620:A:OP2	2.48	0.46
14:D:63:LEU:O	14:D:70:ARG:NH1	2.48	0.46
25:O:28:LYS:NZ	26:P:51:GLU:OE1	2.42	0.46
36:c:32:LEU:HD13	36:c:71:ILE:HD11	1.96	0.46
39:f:114:LEU:HA	39:f:117:ILE:HG22	1.98	0.46
48:t:153:ASP:OD2	48:t:248:ARG:NH2	2.47	0.46
49:u:168:SER:OG	49:u:169:ARG:NH1	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:u:385:PRO:HA	49:u:388:LYS:HB2	1.97	0.46
6:5:68:ASP:HA	6:5:71:VAL:HG22	1.96	0.46
11:A:1209:A:O2'	27:Q:85:ARG:NH1	2.48	0.46
11:A:1219:JMH:O2'	11:A:1220:A:OP1	2.33	0.46
14:D:54:ARG:NH2	22:L:200:ARG:O	2.48	0.46
24:N:57:LYS:NZ	24:N:160:ALA:O	2.42	0.46
53:y:347:ARG:HD2	53:y:385:TYR:HA	1.97	0.46
53:y:448:VAL:HG11	53:y:486:VAL:HG21	1.98	0.46
53:y:700:ALA:HB2	53:y:793:PHE:CG	2.50	0.46
1:0:1089:VAL:HG11	1:0:1124:PRO:HD2	1.98	0.46
6:5:462:SER:OG	50:v:376:ARG:NH1	2.49	0.46
7:6:360:ASN:HA	7:6:363:LYS:HD2	1.98	0.46
11:A:1513:C:H2'	11:A:1514:G:H8	1.79	0.46
17:G:165:ASN:O	17:G:168:HIS:NE2	2.49	0.46
25:O:134:LEU:HG	25:O:218:LEU:HD12	1.96	0.46
26:P:102:GLY:O	26:P:106:LYS:NZ	2.47	0.46
33:Z:150:MET:HE2	33:Z:152:PHE:CZ	2.50	0.46
35:b:22:LEU:HA	35:b:25:LEU:HD12	1.98	0.46
36:c:191:HIS:CD2	36:c:217:MET:HE2	2.51	0.46
44:n:14:VAL:HA	44:n:32:VAL:HG12	1.98	0.46
49:u:87:GLU:HG2	49:u:170:VAL:HG23	1.96	0.46
50:v:284:GLU:OE2	53:y:586:ARG:NH2	2.49	0.46
52:x:317:THR:O	52:x:321:HIS:ND1	2.45	0.46
6:5:551:GLU:HB3	6:5:555:ARG:HH12	1.79	0.46
11:A:509:OMG:HM23	11:A:509:OMG:C4	2.51	0.46
26:P:33:ILE:HD13	26:P:95:ILE:HG23	1.98	0.46
32:Y:19:ALA:HB2	32:Y:75:GLY:HA3	1.97	0.46
6:5:494:LYS:HD3	6:5:497:MET:SD	2.56	0.46
11:A:920:A:O2'	11:A:922:A:OP1	2.28	0.46
13:C:63:LYS:HA	13:C:66:MET:HE3	1.97	0.46
42:k:116:ARG:NH1	42:k:120:GLU:OE2	2.49	0.46
45:o:266:SER:HB3	45:o:288:HIS:HB2	1.98	0.46
50:v:401:TYR:HB3	53:y:846:ARG:HH22	1.81	0.46
53:y:104:ARG:NH1	53:y:108:ARG:HG3	2.31	0.46
53:y:551:LEU:O	53:y:555:ILE:HG12	2.16	0.46
1:0:738:ILE:HA	1:0:741:ILE:HD12	1.98	0.46
1:0:981:VAL:HG13	1:0:1033:VAL:HG23	1.98	0.46
1:0:1094:ILE:HB	1:0:1182:LEU:HB2	1.97	0.46
2:1:507:ARG:HD3	2:1:556:VAL:HG11	1.98	0.46
11:A:1285:G:OP2	43:m:61:TYR:OH	2.24	0.46
25:O:111:CYS:HB3	27:Q:68:TYR:HB2	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:O:130:THR:OG1	25:O:178:THR:O	2.33	0.46
27:Q:52:ASP:OD1	27:Q:52:ASP:N	2.49	0.46
1:0:891:PRO:O	1:0:941:THR:OG1	2.31	0.46
6:5:381:ARG:NH1	6:5:537:ARG:H	2.13	0.46
11:A:620:G:N2	11:A:647:U:OP1	2.49	0.46
11:A:960:U:O3'	26:P:149:ARG:NH2	2.49	0.46
11:A:1037:G:H4'	11:A:1845:A:H4'	1.98	0.46
12:B:120:VAL:HG12	12:B:145:VAL:HG11	1.97	0.46
26:P:44:VAL:HG13	26:P:53:ILE:HB	1.98	0.46
37:d:35:ASP:N	37:d:35:ASP:OD1	2.48	0.46
40:h:21:ARG:HH11	40:h:88:LEU:HD23	1.81	0.46
41:i:16:GLN:O	41:i:27:ARG:NH1	2.49	0.46
1:0:763:ASP:O	1:0:780:LYS:NZ	2.42	0.46
5:4:292:ASP:HA	7:6:344:LYS:HE2	1.98	0.46
10:9:10:MET:HE3	10:9:10:MET:HB3	1.82	0.46
11:A:21:U:O2'	14:D:17:ARG:O	2.34	0.46
11:A:1636:G:H2'	38:e:39:LYS:HD2	1.97	0.46
26:P:119:LEU:O	26:P:124:MET:HB2	2.15	0.46
32:Y:35:ASN:O	37:d:7:LYS:NZ	2.43	0.46
42:k:119:ARG:HB2	42:k:139:HIS:CE1	2.51	0.46
43:m:52:LEU:HD13	43:m:65:VAL:HG11	1.98	0.46
48:t:259:ILE:HD12	48:t:281:GLY:HA2	1.97	0.46
11:A:693:A:H2'	11:A:694:G:C8	2.51	0.45
11:A:1512:C:O2'	41:i:7:TYR:O	2.25	0.45
11:A:1629:C:H2'	11:A:1630:A:H8	1.80	0.45
25:O:176:VAL:HG13	25:O:184:VAL:HG11	1.97	0.45
29:S:32:MET:SD	29:S:32:MET:N	2.87	0.45
34:a:49:MET:HA	34:a:52:LEU:HD12	1.98	0.45
52:x:37:ASP:OD2	53:y:595:GLN:NE2	2.46	0.45
11:A:719:G:H5"	11:A:719:G:H8	1.81	0.45
11:A:1204:A:OP1	22:L:117:ARG:NE	2.42	0.45
30:T:15:ASN:HB3	30:T:20:ARG:HG2	1.97	0.45
31:V:198:ARG:NH1	47:r:82:TYR:HB3	2.31	0.45
33:Z:42:THR:OG1	33:Z:45:ARG:O	2.25	0.45
35:b:81:ARG:NH2	35:b:120:SER:O	2.49	0.45
44:n:20:ARG:NH2	44:n:25:GLY:O	2.49	0.45
1:0:1018:VAL:HG21	1:0:1045:ALA:HB1	1.98	0.45
6:5:382:ILE:O	6:5:538:ARG:NH1	2.50	0.45
11:A:712:G:H5"	11:A:712:G:H8	1.81	0.45
11:A:866:U:H2'	11:A:867:G:C8	2.52	0.45
31:V:35:LEU:HD21	31:V:146:ARG:HH11	1.80	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
42:k:107:LYS:HE2	42:k:114:ILE:HA	1.98	0.45
53:y:397:MET:SD	53:y:400:LYS:HD3	2.57	0.45
54:z:48:ARG:NH1	54:z:107:THR:O	2.49	0.45
6:5:82:ASP:OD1	6:5:83:VAL:N	2.49	0.45
7:6:342:PHE:HD2	7:6:346:GLN:HB2	1.81	0.45
11:A:1101:U:H2'	11:A:1102:G:C8	2.51	0.45
11:A:1416:C:C4	11:A:1417:C:N4	2.84	0.45
11:A:1541:G:OP1	37:d:56:ARG:NE	2.41	0.45
24:N:140:VAL:HG13	24:N:142:LEU:HG	1.97	0.45
34:a:35:LEU:HD22	34:a:40:VAL:HG21	1.98	0.45
52:x:218:ARG:N	52:x:326:GLN:OE1	2.49	0.45
11:A:640:A:H2'	11:A:641:A:C8	2.52	0.45
11:A:1829:G:P	54:z:64:GLN:HE22	2.40	0.45
11:A:1863:A:H1'	27:Q:79:ILE:HD11	1.98	0.45
49:u:105:LYS:HE2	49:u:149:TRP:CD1	2.52	0.45
49:u:336:THR:OG1	49:u:337:ASP:N	2.45	0.45
54:z:24:LYS:HD2	54:z:24:LYS:HA	1.68	0.45
1:0:632:PRO:HG3	1:0:842:THR:HG21	1.98	0.45
1:0:728:ASP:HB3	1:0:731:HIS:HB2	1.99	0.45
1:0:991:LEU:HD21	1:0:1008:ILE:HB	1.99	0.45
7:6:28:GLU:O	7:6:32:GLU:N	2.48	0.45
11:A:982:G:H21	11:A:1045:U:H1'	1.82	0.45
11:A:1012:A:OP2	19:I:3:ARG:NH1	2.50	0.45
33:Z:192:TRP:NE1	33:Z:201:LYS:O	2.49	0.45
35:b:37:TYR:O	35:b:42:ARG:NH1	2.50	0.45
48:t:389:ASP:HB3	48:t:392:ALA:HB3	1.98	0.45
1:0:753:VAL:HB	1:0:820:LEU:HD23	1.98	0.45
2:1:520:GLN:HE22	2:1:570:TRP:CG	2.35	0.45
6:5:191:ILE:HG21	6:5:279:ARG:HH21	1.80	0.45
11:A:808:A:H2	11:A:855:G:H22	1.63	0.45
11:A:1172:U:H2'	11:A:1173:A:C8	2.52	0.45
11:A:1233:G:N3	11:A:1252:C:O2'	2.40	0.45
24:N:85:ARG:NH2	24:N:201:LEU:O	2.49	0.45
30:T:37:LYS:HA	30:T:40:ILE:HD12	1.99	0.45
42:k:103:LEU:HB3	42:k:105:TYR:HD2	1.82	0.45
47:r:112:LEU:HA	47:r:115:VAL:HG22	1.99	0.45
54:z:21:LEU:O	54:z:22:ILE:HD13	2.16	0.45
1:0:684:MET:HE3	1:0:770:SER:H	1.81	0.45
1:0:1196:ASP:OD2	1:0:1197:TRP:NE1	2.50	0.45
5:4:91:VAL:O	5:4:128:SER:HA	2.17	0.45
11:A:956:G:H4'	26:P:60:MET:HE1	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:G:53:VAL:HG21	17:G:172:THR:HG23	1.99	0.45
20:J:25:VAL:O	20:J:62:VAL:HA	2.16	0.45
26:P:39:ASP:OD1	26:P:40:THR:N	2.48	0.45
26:P:54:CYS:SG	26:P:55:ARG:N	2.90	0.45
34:a:47:LYS:HD3	34:a:47:LYS:HA	1.74	0.45
37:d:112:MET:SD	37:d:127:GLY:HA2	2.57	0.45
49:u:48:GLU:OE1	49:u:85:SER:OG	2.34	0.45
53:y:440:VAL:HG12	53:y:443:CYS:H	1.82	0.45
6:5:551:GLU:HB3	6:5:555:ARG:NH1	2.32	0.45
11:A:557:U:H5'	11:A:558:G:C8	2.52	0.45
14:D:114:VAL:HG13	14:D:119:LEU:HB2	1.98	0.45
18:H:45:THR:OG1	18:H:82:LYS:NZ	2.40	0.45
26:P:80:ASP:HA	26:P:83:GLN:HG3	1.99	0.45
35:b:123:TYR:OH	39:f:124:ARG:NH1	2.43	0.45
43:m:33:ARG:HA	43:m:109:VAL:HG23	1.98	0.45
45:o:269:TYR:HB3	45:o:284:PHE:HB2	1.99	0.45
53:y:582:TRP:CZ2	53:y:586:ARG:HD3	2.52	0.45
53:y:628:ASP:OD1	53:y:629:ALA:N	2.49	0.45
1:0:1142:GLU:O	1:0:1158:CYS:N	2.51	0.44
6:5:475:LEU:HD12	6:5:528:ILE:HD12	1.99	0.44
11:A:1543:U:OP1	32:Y:37:ARG:NH2	2.50	0.44
1:0:889:ILE:HD12	1:0:898:VAL:HG22	1.99	0.44
6:5:240:ILE:HD11	6:5:267:LYS:HA	1.99	0.44
6:5:471:PRO:HG2	6:5:474:LYS:HB2	1.99	0.44
11:A:1507:G:O2'	42:k:89:LYS:HG3	2.17	0.44
12:B:82:MET:HG3	12:B:85:THR:HB	1.99	0.44
24:N:148:CYS:SG	24:N:149:ASN:N	2.91	0.44
33:Z:35:SER:N	33:Z:51:LEU:O	2.50	0.44
37:d:114:GLU:N	37:d:114:GLU:OE1	2.50	0.44
42:k:137:ASP:OD1	42:k:137:ASP:N	2.50	0.44
53:y:425:LEU:HB2	53:y:432:HIS:HE2	1.81	0.44
1:0:1036:ALA:HB1	1:0:1039:VAL:HB	1.99	0.44
11:A:1018:U:H5"	19:I:71:ILE:HD13	1.99	0.44
11:A:1565:C:OP2	37:d:101:ARG:NE	2.48	0.44
11:A:1616:U:O2'	11:A:1661:A:N3	2.36	0.44
18:H:33:MET:HE2	18:H:33:MET:HB3	1.83	0.44
25:O:77:ASP:OD1	49:u:10:ASN:HB3	2.17	0.44
49:u:315:MET:HE3	49:u:315:MET:HB3	1.88	0.44
49:u:341:LEU:HD21	49:u:348:ILE:HA	1.99	0.44
6:5:280:LEU:HA	6:5:283:LEU:HD12	1.99	0.44
11:A:1277:C:H2'	11:A:1278:A:C8	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:Y:108:ILE:HA	32:Y:111:ILE:HD12	1.98	0.44
38:e:86:ALA:O	38:e:90:GLU:HG3	2.17	0.44
48:t:386:THR:HB	48:t:389:ASP:HB2	1.99	0.44
2:1:527:CYS:HA	2:1:545:GLU:O	2.18	0.44
2:1:567:ALA:HB3	2:1:580:LEU:HB2	1.98	0.44
6:5:59:PHE:HD2	6:5:128:PHE:HE1	1.66	0.44
6:5:177:GLU:HA	6:5:265:LEU:HD22	2.00	0.44
10:9:7:LYS:O	10:9:11:ARG:HG3	2.18	0.44
11:A:1500:G:H5'	33:Z:176:LEU:HD11	1.99	0.44
18:H:30:SER:OG	18:H:31:TYR:N	2.50	0.44
29:S:65:GLN:OE1	29:S:66:GLY:N	2.51	0.44
40:h:82:MET:HE1	41:i:52:PHE:CD2	2.52	0.44
43:m:89:VAL:HG11	43:m:109:VAL:HG11	1.98	0.44
50:v:387:LYS:H	50:v:387:LYS:HD2	1.82	0.44
1:0:636:VAL:HB	1:0:702:ASP:HA	1.98	0.44
1:0:782:ASN:OD1	1:0:783:THR:N	2.50	0.44
1:0:1102:PHE:HB3	1:0:1110:MET:HA	1.99	0.44
2:1:529:LYS:HD2	2:1:529:LYS:HA	1.82	0.44
7:6:352:ASP:OD1	7:6:353:THR:N	2.51	0.44
11:A:106:C:H2'	11:A:107:A:H8	1.82	0.44
11:A:1438:A:H2'	11:A:1439:A:C8	2.53	0.44
13:C:124:CYS:HB3	13:C:141:THR:HB	1.99	0.44
28:R:174:CYS:HB2	28:R:190:LEU:HD21	2.00	0.44
48:t:166:PRO:O	48:t:385:ARG:NE	2.50	0.44
49:u:8:PRO:HG2	49:u:46:ILE:HG21	2.00	0.44
49:u:38:LYS:HD3	49:u:41:ARG:HE	1.83	0.44
49:u:563:LYS:HA	49:u:567:ARG:HB2	2.00	0.44
1:0:781:LYS:HA	1:0:784:LYS:HD2	1.99	0.44
11:A:1133:A:O3'	27:Q:13:LYS:NZ	2.50	0.44
11:A:1360:U:O2'	11:A:1379:A:OP2	2.32	0.44
22:L:216:MET:HB2	22:L:216:MET:HE2	1.74	0.44
24:N:10:MET:HA	24:N:10:MET:HE2	2.00	0.44
26:P:75:MET:HE2	26:P:118:ALA:HB2	2.00	0.44
40:h:61:LEU:O	40:h:81:GLN:HA	2.18	0.44
49:u:281:THR:OG1	49:u:285:LYS:NZ	2.50	0.44
49:u:462:VAL:HG13	49:u:466:GLN:HG2	2.00	0.44
11:A:623:G:O6	15:E:63:ASN:ND2	2.43	0.44
11:A:656:G:O2'	22:L:227:ARG:NH1	2.51	0.44
40:h:35:VAL:O	40:h:39:LEU:HD12	2.18	0.44
50:v:266:ASP:O	50:v:268:ARG:NE	2.47	0.44
8:7:-25:C:H1'	53:y:655:LEU:HD21	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:D:111:GLN:NE2	14:D:123:ILE:HG13	2.33	0.44
24:N:126:ASP:O	24:N:130:ASP:HB2	2.18	0.44
31:V:157:GLY:HA2	31:V:188:TYR:HD2	1.83	0.44
53:y:701:HIS:CE1	53:y:702:GLU:HG2	2.53	0.44
2:1:477:ASN:HB3	2:1:498:LEU:HD13	2.00	0.43
11:A:602:G:N2	11:A:620:G:N7	2.63	0.43
11:A:926:A:H61	11:A:1015:U:H3	1.66	0.43
11:A:1172:U:C2	11:A:1188:A:N7	2.86	0.43
11:A:1734:G:O2'	11:A:1800:A:N6	2.49	0.43
42:k:107:LYS:HD3	42:k:109:ASP:HB2	2.00	0.43
49:u:562:ARG:HA	49:u:562:ARG:HD3	1.80	0.43
54:z:132:ASP:OD1	54:z:132:ASP:N	2.51	0.43
2:1:542:THR:HG23	2:1:561:MET:HB2	2.00	0.43
2:1:612:ASN:H	2:1:627:GLY:HA2	1.83	0.43
6:5:178:LEU:HB3	6:5:182:TRP:HD1	1.84	0.43
6:5:377:MET:HE1	6:5:454:GLN:HG3	2.00	0.43
11:A:447:A:OP1	28:R:49:ARG:NH1	2.50	0.43
11:A:1568:C:H2'	11:A:1569:A:C8	2.52	0.43
18:H:41:TYR:CD1	18:H:43:ILE:HD11	2.53	0.43
18:H:64:CYS:SG	18:H:71:ALA:HB1	2.58	0.43
19:I:46:THR:O	19:I:50:ILE:HD12	2.17	0.43
25:O:171:ILE:O	25:O:174:ARG:N	2.52	0.43
25:O:182:LYS:O	25:O:186:ASN:ND2	2.49	0.43
26:P:117:ARG:NE	26:P:121:ARG:HH22	2.16	0.43
31:V:123:GLU:HG2	44:n:59:LEU:HD13	2.00	0.43
35:b:138:SER:OG	39:f:151:LYS:NZ	2.51	0.43
49:u:440:LEU:HD21	49:u:471:ILE:HG12	2.00	0.43
8:7:-19:G:O2'	49:u:158:ARG:NH2	2.52	0.43
11:A:1310:U:H5"	42:k:130:VAL:HG23	2.00	0.43
11:A:1862:G:H22	27:Q:76:SER:HB2	1.82	0.43
21:K:41:LYS:HB3	21:K:41:LYS:HE3	1.83	0.43
47:r:72:VAL:O	47:r:86:SER:N	2.47	0.43
48:t:43:ASN:HB3	48:t:152:MET:HE3	2.01	0.43
53:y:409:MET:HG3	53:y:485:ARG:HH21	1.84	0.43
53:y:826:ILE:O	53:y:827:ILE:C	2.58	0.43
1:0:984:GLN:O	1:0:1036:ALA:HA	2.17	0.43
11:A:1143:A:O3'	11:A:1355:C:N4	2.51	0.43
11:A:1255:G:OP1	11:A:1256:G:O2'	2.28	0.43
11:A:1598:G:OP1	38:e:80:ARG:NH1	2.49	0.43
33:Z:32:ASP:O	33:Z:53:THR:OG1	2.37	0.43
40:h:28:ASN:OD1	40:h:28:ASN:N	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:h:82:MET:HE3	40:h:82:MET:HB3	1.85	0.43
53:y:670:GLN:H	53:y:670:GLN:HG2	1.61	0.43
54:z:15:ARG:HG3	54:z:105:PRO:HG3	2.01	0.43
6:5:401:MET:HE2	6:5:408:VAL:HG12	2.00	0.43
11:A:1495:G:N2	41:i:42:CYS:SG	2.90	0.43
11:A:1830:UR3:H6	11:A:1831:A:H62	1.83	0.43
17:G:162:GLN:HE21	17:G:165:ASN:HD22	1.65	0.43
22:L:147:VAL:O	22:L:151:ILE:HG12	2.19	0.43
47:r:155:HIS:HB3	47:r:162:ILE:HD11	2.01	0.43
50:v:366:GLU:HA	50:v:369:ARG:HB3	2.01	0.43
52:x:42:VAL:HG11	53:y:636:ILE:HB	2.00	0.43
52:x:299:PRO:HB3	52:x:399:TRP:HH2	1.84	0.43
6:5:527:MET:SD	6:5:527:MET:N	2.92	0.43
10:9:15:ARG:NH1	11:A:1183:A:OP1	2.52	0.43
13:C:143:ASP:OD1	13:C:143:ASP:N	2.51	0.43
18:H:80:ARG:NH2	52:x:75:GLU:OE1	2.52	0.43
42:k:107:LYS:HG2	42:k:115:SER:O	2.19	0.43
46:q:50:MET:HE2	46:q:50:MET:HA	2.01	0.43
50:v:331:ASP:OD1	50:v:331:ASP:N	2.51	0.43
7:6:327:GLN:HE21	49:u:450:ILE:HA	1.83	0.43
11:A:878:G:H1	11:A:908:A:N6	2.17	0.43
11:A:1869:A:N6	25:O:114:VAL:O	2.52	0.43
15:E:46:HIS:CD2	15:E:103:ALA:HB2	2.53	0.43
36:c:79:LEU:HD11	36:c:87:LEU:HD23	2.01	0.43
47:r:159:ASP:OD1	47:r:159:ASP:N	2.52	0.43
48:t:12:GLN:NE2	48:t:326:ASN:OD1	2.43	0.43
48:t:271:VAL:HA	48:t:274:LEU:HD13	2.00	0.43
49:u:30:VAL:O	49:u:34:VAL:HG23	2.19	0.43
2:1:516:LYS:HD2	2:1:517:LEU:H	1.84	0.43
11:A:436:G:O3'	11:A:473:A:N6	2.52	0.43
11:A:1673:U:O2'	31:V:84:GLY:O	2.24	0.43
29:S:33:ALA:N	29:S:52:ILE:O	2.47	0.43
48:t:187:ILE:HB	48:t:221:ILE:HG12	2.01	0.43
49:u:440:LEU:HA	49:u:443:VAL:HG12	2.00	0.43
1:0:996:GLU:HA	1:0:999:LYS:HG2	2.01	0.43
2:1:170:GLY:N	2:1:230:LYS:O	2.52	0.43
11:A:681:U:OP1	15:E:8:ARG:NH2	2.52	0.43
11:A:919:A:N1	11:A:1020:A:O2'	2.44	0.43
11:A:920:A:OP1	20:J:57:ARG:NH2	2.52	0.43
11:A:1275:G:N2	11:A:1506:A:OP2	2.38	0.43
11:A:1677:U:O4	11:A:1678:A2M:N6	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:D:125:HIS:HA	14:D:128:VAL:HG22	2.00	0.43
17:G:128:ALA:HA	17:G:131:GLU:HG2	2.01	0.43
25:O:52:THR:HG22	25:O:58:ALA:H	1.83	0.43
25:O:139:CYS:HA	25:O:213:ARG:H	1.84	0.43
26:P:92:ALA:HA	26:P:125:LYS:O	2.19	0.43
35:b:44:ARG:O	35:b:47:ARG:O	2.37	0.43
43:m:79:VAL:HG11	43:m:85:LEU:HD13	2.01	0.43
53:y:753:HIS:O	53:y:757:ILE:HG22	2.19	0.43
4:3:182:ASP:N	4:3:186:GLN:O	2.52	0.43
6:5:523:ILE:HG12	6:5:528:ILE:HG23	2.01	0.43
10:9:18:ARG:NH2	11:A:1182:A:OP1	2.52	0.43
11:A:60:G:N2	11:A:316:G:H21	2.17	0.43
11:A:522:A:H5"	14:D:145:PRO:HD2	1.99	0.43
11:A:1096:G:H1	11:A:1136:U:H3	1.66	0.43
11:A:1867:U:C4	27:Q:84:VAL:HG12	2.54	0.43
13:C:238:LEU:O	13:C:240:ARG:NH2	2.52	0.43
26:P:45:THR:HG23	26:P:52:THR:HA	2.01	0.43
42:k:113:LYS:HD2	42:k:113:LYS:HA	1.63	0.43
47:r:197:VAL:HG12	47:r:269:PHE:HA	2.01	0.43
53:y:421:GLY:HA2	53:y:442:GLY:HA3	2.00	0.43
53:y:698:MET:O	53:y:702:GLU:HB2	2.18	0.43
1:0:728:ASP:HA	1:0:756:ASN:HB2	2.00	0.42
2:1:507:ARG:HD3	2:1:556:VAL:HG21	2.00	0.42
7:6:283:MET:HG3	7:6:320:MET:HE3	2.00	0.42
11:A:98:C:OP2	11:A:426:A:O2'	2.30	0.42
11:A:119:PSU:O4	13:C:33:THR:OG1	2.29	0.42
11:A:419:G:O3'	20:J:88:LYS:NZ	2.51	0.42
11:A:527:C:H2'	11:A:528:A:C8	2.54	0.42
22:L:144:SER:HB3	22:L:150:ALA:HB2	1.99	0.42
32:Y:98:LYS:HA	36:c:57:ARG:HH12	1.83	0.42
36:c:82:SER:OG	36:c:83:TRP:N	2.51	0.42
44:n:36:ASP:OD1	44:n:37:ASP:N	2.51	0.42
49:u:296:LEU:HD12	49:u:322:VAL:HG22	2.01	0.42
50:v:315:CYS:HA	50:v:318:VAL:HG12	2.00	0.42
11:A:1122:A:OP1	25:O:160:GLN:NE2	2.47	0.42
11:A:1232:U:H2'	11:A:1233:G:H8	1.85	0.42
11:A:1283:C:H4'	11:A:1286:G:H4'	2.01	0.42
25:O:28:LYS:HD3	25:O:48:LEU:HD13	2.01	0.42
25:O:35:ALA:HB3	25:O:42:ARG:HA	2.01	0.42
26:P:72:TYR:OH	31:V:204:ARG:NH2	2.51	0.42
35:b:108:LYS:O	35:b:111:MET:HG3	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:c:23:THR:HG22	36:c:31:ILE:HG22	2.00	0.42
46:q:76:ILE:HG21	46:q:109:LEU:HD11	2.00	0.42
48:t:205:GLU:HA	48:t:208:LEU:HG	2.01	0.42
49:u:171:GLU:HA	49:u:174:TYR:HB3	2.00	0.42
54:z:22:ILE:HB	54:z:37:VAL:H	1.85	0.42
1:0:996:GLU:O	1:0:1000:THR:HG23	2.19	0.42
1:0:1174:ARG:HH22	51:w:70:G:H5"	1.85	0.42
6:5:143:LYS:HA	6:5:143:LYS:HD2	1.90	0.42
11:A:45:A:N1	11:A:480:G:O2'	2.49	0.42
25:O:168:MET:HG2	25:O:169:MET:SD	2.59	0.42
33:Z:113:LEU:HD23	33:Z:118:ALA:HB2	2.01	0.42
47:r:142:TYR:HE2	47:r:152:ALA:HB2	1.84	0.42
49:u:305:GLU:HB3	49:u:306:MET:HE2	2.02	0.42
53:y:68:ARG:HH12	53:y:109:ILE:HA	1.83	0.42
1:0:948:LEU:HD12	1:0:963:LEU:HG	2.02	0.42
1:0:1034:ILE:HB	1:0:1056:ILE:HG22	2.01	0.42
11:A:1665:G:C5	37:d:88:MET:HE1	2.54	0.42
13:C:71:LYS:HB2	13:C:91:SER:HB2	2.01	0.42
19:I:31:ASP:OD1	19:I:31:ASP:N	2.50	0.42
32:Y:51:LEU:HD21	32:Y:81:ILE:HB	2.01	0.42
42:k:106:TYR:CE2	43:m:64:LEU:HD11	2.55	0.42
49:u:398:PHE:HB3	49:u:511:LEU:HD13	2.01	0.42
1:0:1215:LYS:O	1:0:1215:LYS:HD3	2.19	0.42
6:5:340:LEU:HD23	6:5:340:LEU:HA	1.81	0.42
11:A:639:C:H2'	11:A:640:A:C8	2.54	0.42
11:A:821:G:O6	14:D:153:SER:OG	2.34	0.42
16:F:80:LEU:HD21	46:q:62:ARG:HD2	2.00	0.42
24:N:8:LEU:HB3	24:N:59:LEU:HD13	2.02	0.42
25:O:190:PRO:HB3	49:u:17:GLU:OE2	2.20	0.42
29:S:218:LYS:HE3	29:S:218:LYS:HB2	1.67	0.42
49:u:350:GLU:HB3	49:u:353:ARG:HH21	1.85	0.42
53:y:326:HIS:HB2	53:y:366:LEU:HD13	2.02	0.42
53:y:818:VAL:HA	53:y:821:ILE:HG22	2.01	0.42
8:7:6:A:N7	46:q:12:ARG:NH1	2.65	0.42
11:A:600:G:H2'	11:A:601:G:H8	1.84	0.42
11:A:1275:G:O4'	11:A:1506:A:N6	2.53	0.42
14:D:170:PRO:HB3	14:D:174:LYS:HD3	2.01	0.42
27:Q:61:ALA:HB2	49:u:7:ARG:HE	1.85	0.42
49:u:196:LYS:O	49:u:200:ASN:HB2	2.20	0.42
53:y:793:PHE:CE1	53:y:825:MET:HG3	2.50	0.42
6:5:481:LEU:HD23	6:5:485:GLU:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:106:C:OP1	11:A:431:G:O2'	2.37	0.42
11:A:114:G:N1	11:A:350:C:O2	2.52	0.42
11:A:750:C:H41	11:A:793:G:H1'	1.85	0.42
11:A:1310:U:H4'	42:k:143:LYS:HB2	2.01	0.42
11:A:1351:G:O2'	11:A:1378:A:N1	2.43	0.42
11:A:1375:G:OP1	23:M:67:ARG:NH1	2.53	0.42
11:A:1674:G:N7	32:Y:17:LYS:NZ	2.58	0.42
26:P:131:ASP:OD1	26:P:131:ASP:N	2.47	0.42
39:f:40:TYR:HE2	39:f:71:MET:HG3	1.85	0.42
40:h:61:LEU:HB3	41:i:34:TYR:CE2	2.55	0.42
48:t:141:LEU:HD12	48:t:141:LEU:HA	1.79	0.42
48:t:155:ALA:HB3	48:t:185:ILE:HG12	2.02	0.42
48:t:204:TYR:CE1	48:t:221:ILE:HB	2.54	0.42
48:t:378:LEU:HD13	48:t:382:LEU:HD12	2.01	0.42
49:u:403:LEU:HD23	49:u:439:LEU:HD13	2.02	0.42
1:0:1097:LEU:H	1:0:1112:VAL:HA	1.85	0.42
11:A:121:OMU:H1'	11:A:121:OMU:HM23	1.80	0.42
11:A:913:A:H2'	17:G:120:ARG:HH12	1.84	0.42
11:A:1350:U:O2'	24:N:110:ASN:OD1	2.29	0.42
30:T:74:MET:HE2	30:T:76:TYR:CE1	2.55	0.42
49:u:86:LEU:HA	49:u:89:VAL:HG12	2.01	0.42
52:x:41:LYS:HB2	53:y:595:GLN:HG3	2.01	0.42
1:0:1001:SER:O	1:0:1073:ARG:NH1	2.53	0.42
2:1:619:GLN:H	2:1:663:GLY:HA3	1.84	0.42
11:A:482:G:N1	11:A:485:A:OP2	2.50	0.42
11:A:844:U:H2'	11:A:845:G:C8	2.54	0.42
26:P:65:ASP:HA	26:P:68:GLU:HG3	2.02	0.42
31:V:36:GLN:OE1	52:x:479:GLN:NE2	2.53	0.42
49:u:525:ALA:O	49:u:528:SER:OG	2.38	0.42
53:y:789:ARG:HD2	53:y:821:ILE:HD11	2.02	0.42
6:5:271:TYR:O	6:5:275:VAL:HG23	2.20	0.42
7:6:341:THR:O	7:6:341:THR:OG1	2.36	0.42
11:A:29:G:H2'	11:A:30:C:C6	2.54	0.42
11:A:1227:G:H2'	38:e:34:LYS:HZ2	1.85	0.42
11:A:1710:C:H2'	11:A:1711:U:H6	1.84	0.42
11:A:1752:C:H41	11:A:1754:G:H5"	1.85	0.42
17:G:63:PHE:HA	17:G:95:ILE:O	2.20	0.42
25:O:117:TRP:HB3	25:O:153:THR:HA	2.02	0.42
26:P:40:THR:HG21	26:P:74:ALA:HB2	2.01	0.42
32:Y:33:LYS:NZ	37:d:8:ASP:OD1	2.53	0.42
34:a:74:GLU:H	34:a:74:GLU:CD	2.28	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
39:f:12:ILE:HD13	39:f:21:ASP:HA	2.02	0.42
47:r:154:LYS:HE3	47:r:285:GLU:HA	2.01	0.42
50:v:401:TYR:H	53:y:846:ARG:HH22	1.66	0.42
52:x:447:LEU:HD23	52:x:471:PHE:HE1	1.84	0.42
53:y:827:ILE:HG13	53:y:828:ASN:N	2.35	0.42
54:z:20:ARG:HH21	54:z:86:GLN:HG2	1.85	0.42
54:z:44:LYS:HA	54:z:44:LYS:HD3	1.86	0.42
1:0:645:THR:OG1	55:0:2001:GTP:O2A	2.37	0.41
11:A:511:U:O2'	11:A:576:A:N6	2.53	0.41
11:A:527:C:H2'	11:A:528:A:H8	1.85	0.41
11:A:1036:A:H1'	11:A:1844:U:H1'	2.02	0.41
19:I:49:GLN:O	19:I:53:ILE:HG12	2.20	0.41
24:N:198:MET:HG3	24:N:200:ASP:H	1.85	0.41
25:O:169:MET:SD	25:O:169:MET:N	2.92	0.41
28:R:61:ASP:OD1	28:R:61:ASP:N	2.53	0.41
35:b:81:ARG:NH2	35:b:120:SER:OG	2.52	0.41
38:e:48:VAL:HG11	39:f:23:ARG:HA	2.02	0.41
42:k:121:CYS:SG	42:k:126:CYS:HB2	2.60	0.41
48:t:258:VAL:HG13	48:t:279:ALA:HB1	2.02	0.41
49:u:340:ARG:O	49:u:344:MET:HB3	2.20	0.41
53:y:697:TYR:O	53:y:701:HIS:ND1	2.38	0.41
7:6:325:ILE:HG12	49:u:446:ILE:HG13	2.02	0.41
11:A:166:A2M:HM'3	11:A:166:A2M:H1'	1.87	0.41
11:A:1650:A:H5"	32:Y:139:ALA:HB2	2.02	0.41
21:K:3:ASN:OD1	21:K:4:ASP:N	2.53	0.41
22:L:94:ILE:HG21	22:L:162:ILE:HD12	2.01	0.41
26:P:61:LYS:NZ	26:P:76:LEU:HB3	2.35	0.41
36:c:219:TRP:CZ3	36:c:226:HIS:HB2	2.55	0.41
42:k:103:LEU:HD12	43:m:35:ILE:HG23	2.02	0.41
48:t:162:ASN:OD1	48:t:162:ASN:N	2.50	0.41
50:v:295:PHE:CD1	50:v:311:LYS:HE3	2.55	0.41
52:x:318:TYR:O	52:x:322:ASN:ND2	2.54	0.41
54:z:39:MET:HE3	54:z:43:ALA:HB2	2.02	0.41
1:0:729:ILE:HG22	1:0:756:ASN:O	2.20	0.41
1:0:936:LYS:HZ2	1:0:936:LYS:HG3	1.60	0.41
6:5:317:TYR:HA	6:5:336:PHE:HE1	1.84	0.41
9:8:225:ALA:O	9:8:229:GLU:N	2.53	0.41
11:A:545:A:O2'	11:A:546:G:O4'	2.38	0.41
11:A:1668:U:OP2	32:Y:141:TYR:OH	2.33	0.41
11:A:1678:A2M:H1'	11:A:1678:A2M:HM'3	1.74	0.41
22:L:109:ILE:HD11	22:L:124:PHE:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:L:169:TYR:OH	22:L:175:GLY:O	2.37	0.41
25:O:72:ALA:HB3	26:P:128:ARG:NH1	2.36	0.41
25:O:83:LYS:HD2	25:O:106:THR:HG22	2.02	0.41
30:T:20:ARG:HD2	30:T:74:MET:HE1	2.01	0.41
40:h:63:ILE:HD12	41:i:52:PHE:CZ	2.55	0.41
48:t:435:THR:HG21	48:t:459:ILE:HD13	2.01	0.41
49:u:320:THR:HG22	49:u:383:VAL:HB	2.02	0.41
49:u:432:GLN:O	49:u:436:ILE:HG12	2.20	0.41
53:y:435:ASP:OD1	53:y:435:ASP:N	2.51	0.41
1:0:1078:LYS:HA	1:0:1078:LYS:HD3	1.80	0.41
6:5:157:TYR:HB2	6:5:222:TRP:NE1	2.35	0.41
11:A:649:U:H2'	11:A:650:A:C8	2.55	0.41
11:A:834:C:H42	11:A:839:C:H42	1.67	0.41
11:A:1849:G:O5'	54:z:55:LYS:NZ	2.50	0.41
18:H:36:LYS:HA	18:H:43:ILE:HD12	2.02	0.41
30:T:12:PHE:HZ	30:T:21:LYS:HD3	1.85	0.41
37:d:40:ALA:HB2	37:d:95:GLY:HA2	2.01	0.41
53:y:445:LEU:HD22	53:y:501:ARG:CZ	2.51	0.41
54:z:42:VAL:O	54:z:46:LEU:HG	2.21	0.41
2:1:575:SER:O	2:1:575:SER:OG	2.38	0.41
11:A:388:U:H2'	11:A:389:A:H8	1.86	0.41
11:A:685:A:H5"	20:J:31:SER:HB3	2.01	0.41
11:A:934:G:H22	11:A:1008:A:H2	1.69	0.41
11:A:1235:G:O2'	35:b:134:GLY:O	2.33	0.41
11:A:1568:C:OP1	37:d:96:SER:OG	2.25	0.41
11:A:1656:G:O6	11:A:1668:U:O4	2.38	0.41
13:C:204:SER:OG	13:C:205:PHE:N	2.54	0.41
31:V:50:PRO:HB3	31:V:69:VAL:HG13	2.03	0.41
34:a:45:VAL:O	34:a:49:MET:HE2	2.21	0.41
43:m:18:LEU:HA	43:m:21:VAL:HG12	2.02	0.41
49:u:335:ARG:HH22	49:u:351:LYS:H	1.68	0.41
52:x:169:GLU:O	52:x:521:SER:N	2.54	0.41
53:y:742:LYS:O	53:y:746:MET:HG2	2.20	0.41
7:6:294:PHE:HE1	7:6:332:VAL:HG13	1.85	0.41
11:A:16:G:H2'	11:A:17:C:C6	2.56	0.41
11:A:1722:G:H2'	11:A:1723:G:H8	1.86	0.41
12:B:124:ASP:OD1	12:B:148:ALA:N	2.51	0.41
33:Z:218:LEU:HD12	36:c:192:THR:HB	2.01	0.41
36:c:46:THR:O	36:c:46:THR:OG1	2.31	0.41
39:f:60:THR:OG1	39:f:61:GLU:OE1	2.38	0.41
50:v:404:VAL:O	50:v:407:LYS:HG3	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
53:y:788:LEU:HD23	53:y:792:LEU:HD23	2.01	0.41
2:1:469:ASP:HB3	2:1:482:TRP:HB3	2.02	0.41
6:5:59:PHE:HE1	6:5:91:ILE:HG23	1.85	0.41
6:5:364:ASN:O	6:5:368:HIS:ND1	2.53	0.41
11:A:43:U:OP2	11:A:485:A:N6	2.42	0.41
11:A:116:OMU:HM23	11:A:116:OMU:H1'	1.65	0.41
11:A:437:G:P	11:A:473:A:H61	2.43	0.41
11:A:533:A:H2'	11:A:534:G:C8	2.56	0.41
22:L:232:THR:HG22	22:L:235:ASN:H	1.85	0.41
24:N:136:GLU:O	24:N:140:VAL:HG12	2.21	0.41
26:P:75:MET:HB2	26:P:75:MET:HE3	1.73	0.41
48:t:87:LYS:NZ	48:t:111:ASP:OD1	2.47	0.41
49:u:38:LYS:HE2	49:u:38:LYS:HB2	1.83	0.41
49:u:316:GLN:O	49:u:320:THR:HG23	2.21	0.41
50:v:294:GLU:HA	50:v:297:GLU:HG3	2.02	0.41
6:5:56:ILE:HG23	6:5:128:PHE:HZ	1.84	0.41
7:6:280:LEU:HB3	7:6:340:ARG:NH2	2.36	0.41
11:A:748:C:N3	11:A:794:A:N6	2.68	0.41
21:K:7:GLU:OE1	21:K:7:GLU:N	2.54	0.41
21:K:69:ILE:HD12	21:K:72:LEU:HD12	2.03	0.41
24:N:174:MET:HE3	24:N:174:MET:HB3	1.91	0.41
29:S:32:MET:HA	29:S:52:ILE:HB	2.02	0.41
31:V:122:ARG:HA	31:V:141:VAL:HB	2.03	0.41
35:b:38:SER:OG	35:b:39:ALA:N	2.53	0.41
48:t:185:ILE:H	48:t:242:LYS:HZ2	1.68	0.41
49:u:36:LYS:HD2	49:u:36:LYS:HA	1.91	0.41
49:u:208:ILE:HD11	49:u:218:ILE:H	1.85	0.41
49:u:463:ASP:H	49:u:466:GLN:NE2	2.19	0.41
53:y:662:GLN:HE21	53:y:662:GLN:HB3	1.74	0.41
53:y:691:MET:O	53:y:695:ILE:HG12	2.21	0.41
1:0:694:ARG:NH2	1:0:843:GLN:O	2.54	0.41
1:0:1140:SER:OG	1:0:1160:LYS:HB3	2.21	0.41
6:5:150:LEU:HD21	6:5:215:LEU:HD21	2.02	0.41
6:5:437:LYS:O	6:5:441:LEU:N	2.47	0.41
7:6:278:ARG:HB3	7:6:311:PHE:CZ	2.56	0.41
9:8:213:VAL:HA	49:u:565:HIS:ND1	2.36	0.41
11:A:94:G:HO2'	11:A:508:A:HO2'	1.61	0.41
11:A:319:C:N4	29:S:186:GLN:OE1	2.54	0.41
11:A:441:C:H2'	11:A:442:C:C6	2.55	0.41
11:A:834:C:O2'	11:A:836:G:N1	2.54	0.41
11:A:959:G:H2'	11:A:960:U:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:A:1404:U:C2	40:h:56:MET:HE1	2.55	0.41
15:E:105:PHE:HB3	15:E:112:VAL:HG21	2.03	0.41
23:M:104:GLU:O	23:M:108:LEU:HD12	2.21	0.41
25:O:181:LEU:HA	25:O:184:VAL:HG22	2.03	0.41
27:Q:52:ASP:HA	27:Q:55:GLU:HG3	2.02	0.41
30:T:36:PRO:O	30:T:40:ILE:HG13	2.21	0.41
38:e:79:ILE:HB	38:e:83:LEU:HD23	2.03	0.41
43:m:44:LYS:O	43:m:46:GLN:NE2	2.42	0.41
50:v:414:ARG:O	50:v:417:MET:HB3	2.21	0.41
53:y:463:ASP:OD2	53:y:466:SER:N	2.54	0.41
1:0:1033:VAL:HG12	1:0:1055:ARG:HB3	2.02	0.41
6:5:278:LEU:HD12	6:5:290:ALA:HB1	2.03	0.41
11:A:581:U:O2'	30:T:32:LYS:O	2.37	0.41
11:A:1032:C:H5"	19:I:109:LYS:HD2	2.02	0.41
23:M:53:TYR:O	23:M:57:LEU:HG	2.21	0.41
27:Q:28:ARG:NH1	27:Q:29:CYS:O	2.54	0.41
29:S:67:VAL:O	29:S:100:CYS:N	2.54	0.41
29:S:215:LYS:O	29:S:219:GLU:HG2	2.21	0.41
49:u:297:HIS:HE1	49:u:326:THR:HB	1.86	0.41
53:y:436:GLN:HB2	53:y:439:ARG:NH2	2.35	0.41
53:y:758:ASN:HB3	53:y:761:MET:HG2	2.03	0.41
53:y:831:LEU:HD12	53:y:844:MET:HG2	2.03	0.41
1:0:712:LEU:HD21	1:0:989:GLY:HA3	2.03	0.40
11:A:941:C:H2'	11:A:942:G:H8	1.85	0.40
11:A:1274:G:H5"	34:a:1:MET:HG2	2.01	0.40
29:S:74:ARG:NH1	29:S:96:SER:OG	2.54	0.40
30:T:20:ARG:CB	30:T:74:MET:HE1	2.48	0.40
30:T:23:MET:SD	30:T:23:MET:N	2.94	0.40
50:v:353:ILE:HG22	50:v:389:GLY:HA3	2.04	0.40
11:A:526:A:H2'	11:A:527:C:C6	2.56	0.40
11:A:1244:U:H2'	11:A:1245:G:C8	2.56	0.40
11:A:1855:G:OP1	26:P:150:ARG:NH2	2.54	0.40
15:E:51:VAL:HA	15:E:72:VAL:HA	2.03	0.40
22:L:220:ASP:OD1	22:L:221:ASP:N	2.54	0.40
43:m:49:LEU:HB3	43:m:111:VAL:HB	2.02	0.40
47:r:156:ALA:HB1	47:r:163:LEU:HD22	2.03	0.40
47:r:180:ILE:O	47:r:184:LEU:CB	2.69	0.40
50:v:249:MET:SD	50:v:249:MET:N	2.91	0.40
51:w:73:A:H5"	51:w:74:C:C5	2.56	0.40
53:y:383:TYR:HB3	53:y:450:ARG:NH1	2.36	0.40
53:y:464:PRO:HG2	53:y:465:HIS:CD2	2.57	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:1:515:CYS:HA	2:1:529:LYS:O	2.22	0.40
6:5:157:TYR:CD2	6:5:221:ILE:HG23	2.56	0.40
7:6:342:PHE:HB2	7:6:346:GLN:HG3	2.02	0.40
11:A:636:C:OP2	16:F:95:LYS:NZ	2.54	0.40
11:A:1217:A:H2'	11:A:1218:C:C6	2.55	0.40
11:A:1508:A:O2'	11:A:1510:G:N7	2.48	0.40
11:A:1869:A:C5	25:O:115:LYS:HG2	2.56	0.40
27:Q:45:VAL:HB	27:Q:49:ALA:HB3	2.04	0.40
39:f:38:ARG:O	39:f:42:HIS:ND1	2.53	0.40
48:t:49:HIS:ND1	48:t:167:GLN:HB3	2.37	0.40
49:u:476:ARG:HG3	53:y:795:TYR:CE1	2.56	0.40
53:y:801:SER:HB2	53:y:842:VAL:HG12	2.03	0.40
6:5:292:LYS:HA	6:5:295:GLU:HG2	2.04	0.40
11:A:57:U:OP1	11:A:504:G:O2'	2.38	0.40
11:A:1864:U:O2'	11:A:1866:A:N7	2.52	0.40
12:B:111:VAL:HG12	12:B:140:PHE:HB2	2.03	0.40
19:I:54:LEU:HB3	19:I:60:VAL:HB	2.03	0.40
22:L:211:LYS:O	22:L:215:MET:HG3	2.22	0.40
49:u:298:ARG:HA	49:u:301:HIS:CE1	2.57	0.40
53:y:113:LEU:HD12	53:y:113:LEU:HA	1.95	0.40
53:y:856:ALA:N	53:y:859:LEU:HD13	2.36	0.40
6:5:340:LEU:HG	6:5:367:MET:HE1	2.04	0.40
9:8:110:VAL:O	49:u:571:ARG:NH1	2.49	0.40
11:A:1031:A2M:HM'3	11:A:1031:A2M:H1'	1.92	0.40
11:A:1154:U:O2'	22:L:192:LEU:HD21	2.20	0.40
14:D:134:HIS:O	14:D:160:SER:N	2.50	0.40
44:n:59:LEU:HD12	44:n:59:LEU:H	1.86	0.40
49:u:392:ASN:HA	49:u:396:VAL:HB	2.04	0.40
50:v:272:GLN:HA	50:v:275:LYS:HD2	2.04	0.40
52:x:39:LEU:HD22	53:y:589:MET:HE3	2.03	0.40
53:y:558:LYS:HE2	53:y:558:LYS:HB2	1.97	0.40
53:y:684:CYS:SG	53:y:765:VAL:HG21	2.61	0.40
54:z:53:PRO:HG3	54:z:92:PHE:CE2	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	619/1220 (51%)	593 (96%)	26 (4%)	0	100	100
2	1	584/814 (72%)	544 (93%)	40 (7%)	0	100	100
3	2	300/325 (92%)	291 (97%)	9 (3%)	0	100	100
4	3	209/218 (96%)	203 (97%)	6 (3%)	0	100	100
5	4	251/357 (70%)	237 (94%)	14 (6%)	0	100	100
6	5	518/564 (92%)	500 (96%)	18 (4%)	0	100	100
7	6	360/374 (96%)	342 (95%)	18 (5%)	0	100	100
9	8	313/352 (89%)	289 (92%)	24 (8%)	0	100	100
10	9	22/25 (88%)	22 (100%)	0	0	100	100
12	B	138/158 (87%)	133 (96%)	5 (4%)	0	100	100
13	C	254/263 (97%)	249 (98%)	5 (2%)	0	100	100
14	D	175/194 (90%)	170 (97%)	5 (3%)	0	100	100
15	E	138/143 (96%)	137 (99%)	1 (1%)	0	100	100
16	F	57/133 (43%)	51 (90%)	6 (10%)	0	100	100
17	G	171/194 (88%)	163 (95%)	8 (5%)	0	100	100
18	H	79/84 (94%)	74 (94%)	5 (6%)	0	100	100
19	I	148/151 (98%)	144 (97%)	4 (3%)	0	100	100
20	J	127/130 (98%)	124 (98%)	3 (2%)	0	100	100
21	K	79/83 (95%)	75 (95%)	4 (5%)	0	100	100
22	L	218/293 (74%)	211 (97%)	7 (3%)	0	100	100
23	M	129/135 (96%)	120 (93%)	9 (7%)	0	100	100
24	N	205/295 (70%)	198 (97%)	7 (3%)	0	100	100
25	O	209/264 (79%)	202 (97%)	7 (3%)	0	100	100
26	P	131/151 (87%)	121 (92%)	10 (8%)	0	100	100
27	Q	97/115 (84%)	95 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	R	194/208 (93%)	190 (98%)	4 (2%)	0	100	100
29	S	228/249 (92%)	222 (97%)	6 (3%)	0	100	100
30	T	123/133 (92%)	123 (100%)	0	0	100	100
31	V	187/204 (92%)	178 (95%)	9 (5%)	0	100	100
32	Y	139/146 (95%)	135 (97%)	4 (3%)	0	100	100
33	Z	225/243 (93%)	221 (98%)	4 (2%)	0	100	100
34	a	97/165 (59%)	91 (94%)	6 (6%)	0	100	100
35	b	129/145 (89%)	122 (95%)	7 (5%)	0	100	100
36	c	311/317 (98%)	290 (93%)	21 (7%)	0	100	100
37	d	140/145 (97%)	134 (96%)	6 (4%)	0	100	100
38	e	79/125 (63%)	76 (96%)	3 (4%)	0	100	100
39	f	147/152 (97%)	139 (95%)	8 (5%)	0	100	100
40	h	101/119 (85%)	95 (94%)	6 (6%)	0	100	100
41	i	48/56 (86%)	46 (96%)	2 (4%)	0	100	100
42	k	66/156 (42%)	59 (89%)	6 (9%)	1 (2%)	8	38
43	m	120/132 (91%)	116 (97%)	4 (3%)	0	100	100
44	n	62/69 (90%)	60 (97%)	2 (3%)	0	100	100
45	o	75/320 (23%)	72 (96%)	3 (4%)	0	100	100
46	q	115/144 (80%)	108 (94%)	7 (6%)	0	100	100
47	r	294/315 (93%)	276 (94%)	18 (6%)	0	100	100
48	t	451/472 (96%)	443 (98%)	8 (2%)	0	100	100
49	u	705/1382 (51%)	659 (94%)	46 (6%)	0	100	100
50	v	403/445 (91%)	371 (92%)	32 (8%)	0	100	100
52	x	417/548 (76%)	390 (94%)	27 (6%)	0	100	100
53	y	650/913 (71%)	621 (96%)	29 (4%)	0	100	100
54	z	130/430 (30%)	123 (95%)	7 (5%)	0	100	100
All	All	11167/14768 (76%)	10648 (95%)	518 (5%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
42	k	93	HIS

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	546/1081 (50%)	546 (100%)	0	100	100
2	1	97/702 (14%)	97 (100%)	0	100	100
6	5	477/515 (93%)	477 (100%)	0	100	100
7	6	112/335 (33%)	112 (100%)	0	100	100
9	8	1/310 (0%)	1 (100%)	0	100	100
10	9	23/24 (96%)	23 (100%)	0	100	100
12	B	129/142 (91%)	129 (100%)	0	100	100
13	C	220/225 (98%)	220 (100%)	0	100	100
14	D	158/168 (94%)	158 (100%)	0	100	100
15	E	112/115 (97%)	112 (100%)	0	100	100
16	F	47/104 (45%)	47 (100%)	0	100	100
17	G	159/174 (91%)	159 (100%)	0	100	100
18	H	73/76 (96%)	73 (100%)	0	100	100
19	I	130/131 (99%)	130 (100%)	0	100	100
20	J	112/113 (99%)	112 (100%)	0	100	100
21	K	65/67 (97%)	65 (100%)	0	100	100
22	L	186/225 (83%)	186 (100%)	0	100	100
23	M	119/122 (98%)	119 (100%)	0	100	100
24	N	173/243 (71%)	173 (100%)	0	100	100
25	O	192/231 (83%)	192 (100%)	0	100	100
26	P	104/119 (87%)	104 (100%)	0	100	100
27	Q	86/98 (88%)	86 (100%)	0	100	100
28	R	172/180 (96%)	172 (100%)	0	100	100
29	S	200/218 (92%)	199 (100%)	1 (0%)	86	92
30	T	107/115 (93%)	107 (100%)	0	100	100
31	V	159/170 (94%)	159 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
32	Y	117/121 (97%)	117 (100%)	0	100	100
33	Z	190/202 (94%)	190 (100%)	0	100	100
34	a	90/136 (66%)	90 (100%)	0	100	100
35	b	117/130 (90%)	117 (100%)	0	100	100
36	c	272/275 (99%)	272 (100%)	0	100	100
37	d	112/115 (97%)	112 (100%)	0	100	100
38	e	71/103 (69%)	71 (100%)	0	100	100
39	f	129/132 (98%)	129 (100%)	0	100	100
40	h	94/107 (88%)	94 (100%)	0	100	100
41	i	44/49 (90%)	44 (100%)	0	100	100
42	k	61/140 (44%)	61 (100%)	0	100	100
43	m	104/108 (96%)	104 (100%)	0	100	100
44	n	57/62 (92%)	57 (100%)	0	100	100
45	o	64/277 (23%)	64 (100%)	0	100	100
46	q	99/123 (80%)	99 (100%)	0	100	100
47	r	190/280 (68%)	190 (100%)	0	100	100
48	t	380/397 (96%)	380 (100%)	0	100	100
49	u	528/1259 (42%)	528 (100%)	0	100	100
50	v	206/406 (51%)	206 (100%)	0	100	100
52	x	207/494 (42%)	207 (100%)	0	100	100
53	y	562/811 (69%)	562 (100%)	0	100	100
54	z	116/388 (30%)	116 (100%)	0	100	100
All	All	7769/12118 (64%)	7768 (100%)	1 (0%)	100	100

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

Mol	Chain	Res	Type
29	S	218	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (67) such sidechains are listed below:

Mol	Chain	Res	Type
1	0	1074	GLN

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Mol	Chain	Res	Type
1	0	1086	HIS
1	0	1103	ASN
2	1	508	ASN
2	1	511	ASN
6	5	60	HIS
6	5	121	GLN
6	5	225	HIS
6	5	427	ASN
6	5	499	ASN
7	6	289	ASN
7	6	366	ASN
13	C	50	ASN
13	C	142	HIS
13	C	188	ASN
14	D	177	ASN
16	F	77	HIS
17	G	165	ASN
17	G	186	ASN
18	H	9	HIS
20	J	24	GLN
22	L	235	ASN
24	N	81	ASN
25	O	118	GLN
27	Q	72	HIS
28	R	138	ASN
29	S	163	ASN
31	V	29	GLN
32	Y	24	HIS
32	Y	29	ASN
34	a	66	HIS
36	c	15	ASN
37	d	10	ASN
37	d	63	HIS
37	d	126	GLN
38	e	45	ASN
39	f	73	ASN
39	f	76	GLN
40	h	92	HIS
43	m	73	GLN
46	q	33	GLN
46	q	87	ASN
46	q	112	HIS

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Mol	Chain	Res	Type
48	t	138	HIS
48	t	206	GLN
49	u	79	GLN
49	u	82	ASN
49	u	270	GLN
49	u	442	GLN
49	u	522	GLN
49	u	551	GLN
50	v	239	GLN
50	v	373	ASN
50	v	377	ASN
50	v	396	ASN
52	x	68	GLN
52	x	325	GLN
52	x	392	ASN
52	x	479	GLN
53	y	149	ASN
53	y	334	ASN
53	y	597	ASN
53	y	623	GLN
53	y	631	ASN
53	y	659	ASN
53	y	670	GLN
54	z	116	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	A	1746/1869 (93%)	423 (24%)	15 (0%)
51	w	74/75 (98%)	33 (44%)	0
8	7	56/255 (21%)	40 (71%)	3 (5%)
All	All	1876/2199 (85%)	496 (26%)	18 (0%)

All (496) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
8	7	-34	C
8	7	-32	A
8	7	-31	C
8	7	-30	A
8	7	-29	A

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Mol	Chain	Res	Type
8	7	-28	C
8	7	-27	A
8	7	-26	A
8	7	-23	A
8	7	-22	C
8	7	-21	A
8	7	-20	A
8	7	-15	C
8	7	-13	A
8	7	-12	A
8	7	-11	A
8	7	-10	A
8	7	-8	A
8	7	-7	G
8	7	-6	A
8	7	-5	C
8	7	-4	C
8	7	-3	A
8	7	-2	C
8	7	-1	C
8	7	1	A
8	7	3	G
8	7	4	G
8	7	6	A
8	7	7	C
8	7	10	U
8	7	11	U
8	7	13	A
8	7	14	A
8	7	15	G
8	7	18	U
8	7	19	U
8	7	20	G
8	7	21	A
8	7	22	G
11	A	2	A
11	A	4	C
11	A	14	C
11	A	17	C
11	A	26	U
11	A	33	G
11	A	42	A

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Mol	Chain	Res	Type
11	A	46	A
11	A	56	G
11	A	58	C
11	A	59	U
11	A	62	G
11	A	64	A
11	A	67	C
11	A	68	A
11	A	73	C
11	A	74	G
11	A	76	U
11	A	78	C
11	A	103	A
11	A	115	U
11	A	126	G
11	A	129	C
11	A	130	G
11	A	140	U
11	A	142	C
11	A	143	U
11	A	155	G
11	A	158	A
11	A	160	U
11	A	163	U
11	A	173	A
11	A	182	C
11	A	184	G
11	A	190	G
11	A	197	U
11	A	198	U
11	A	199	C
11	A	200	G
11	A	202	G
11	A	203	G
11	A	204	G
11	A	206	G
11	A	208	G
11	A	291	G
11	A	292	A
11	A	294	U
11	A	295	C
11	A	306	C

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Mol	Chain	Res	Type
11	A	307	G
11	A	308	G
11	A	314	U
11	A	318	A
11	A	319	C
11	A	321	C
11	A	323	C
11	A	324	C
11	A	325	C
11	A	326	C
11	A	327	G
11	A	329	G
11	A	332	G
11	A	339	A
11	A	347	G
11	A	351	G
11	A	362	C
11	A	364	A
11	A	368	U
11	A	369	C
11	A	370	G
11	A	381	C
11	A	384	U
11	A	385	G
11	A	386	C
11	A	409	C
11	A	418	A
11	A	421	G
11	A	448	A
11	A	450	C
11	A	452	G
11	A	455	A
11	A	465	A
11	A	467	G
11	A	471	G
11	A	472	C
11	A	473	A
11	A	474	G
11	A	476	A
11	A	482	G
11	A	487	U
11	A	492	C

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Mol	Chain	Res	Type
11	A	496	C
11	A	502	C
11	A	507	G
11	A	508	A
11	A	509	OMG
11	A	510	G
11	A	516	A
11	A	525	A
11	A	533	A
11	A	534	G
11	A	536	A
11	A	537	C
11	A	538	U
11	A	539	C
11	A	540	U
11	A	541	U
11	A	542	U
11	A	543	C
11	A	544	G
11	A	545	A
11	A	546	G
11	A	547	G
11	A	550	C
11	A	553	U
11	A	554	A
11	A	556	U
11	A	557	U
11	A	558	G
11	A	563	G
11	A	564	A
11	A	566	U
11	A	568	C
11	A	574	A
11	A	576	A
11	A	589	G
11	A	590	A
11	A	591	U
11	A	598	G
11	A	604	A
11	A	606	G
11	A	607	U
11	A	614	C

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Mol	Chain	Res	Type
11	A	617	G
11	A	626	G
11	A	627	U
11	A	628	A
11	A	643	A
11	A	644	OMG
11	A	645	C
11	A	655	A
11	A	660	C
11	A	662	G
11	A	668	A2M
11	A	669	A
11	A	671	A
11	A	672	A
11	A	673	G
11	A	683	OMG
11	A	684	G
11	A	688	U
11	A	689	U
11	A	690	G
11	A	691	G
11	A	692	G
11	A	695	C
11	A	696	G
11	A	697	G
11	A	698	G
11	A	699	C
11	A	700	G
11	A	705	G
11	A	707	C
11	A	712	G
11	A	713	C
11	A	715	A
11	A	717	G
11	A	719	G
11	A	720	A
11	A	721	G
11	A	723	C
11	A	725	C
11	A	728	C
11	A	729	C
11	A	731	G

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Mol	Chain	Res	Type
11	A	732	U
11	A	733	C
11	A	734	C
11	A	738	C
11	A	739	C
11	A	748	C
11	A	749	U
11	A	751	G
11	A	752	G
11	A	753	C
11	A	790	C
11	A	791	C
11	A	797	C
11	A	798	G
11	A	800	U
11	A	801	U
11	A	810	A
11	A	811	A
11	A	821	G
11	A	822	PSU
11	A	827	A
11	A	830	A
11	A	836	G
11	A	837	A
11	A	838	G
11	A	839	C
11	A	840	C
11	A	841	G
11	A	845	G
11	A	847	A
11	A	870	A
11	A	872	A
11	A	873	G
11	A	880	G
11	A	886	A
11	A	887	U
11	A	888	U
11	A	890	U
11	A	891	G
11	A	892	U
11	A	895	G
11	A	896	U

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Mol	Chain	Res	Type
11	A	897	U
11	A	898	U
11	A	899	U
11	A	900	C
11	A	903	A
11	A	904	A
11	A	908	A
11	A	913	A
11	A	914	U
11	A	917	U
11	A	920	A
11	A	922	A
11	A	930	C
11	A	933	G
11	A	954	U
11	A	963	A
11	A	965	U
11	A	970	G
11	A	972	A
11	A	990	A
11	A	992	A
11	A	999	G
11	A	1002	U
11	A	1017	U
11	A	1023	A
11	A	1045	U
11	A	1047	C
11	A	1060	A
11	A	1061	U
11	A	1062	A
11	A	1083	A
11	A	1085	C
11	A	1089	G
11	A	1108	G
11	A	1109	C
11	A	1113	A
11	A	1114	U
11	A	1115	U
11	A	1117	C
11	A	1119	A
11	A	1120	U
11	A	1123	C

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Mol	Chain	Res	Type
11	A	1133	A
11	A	1138	C
11	A	1139	C
11	A	1153	C
11	A	1154	U
11	A	1172	U
11	A	1195	A
11	A	1207	G
11	A	1209	A
11	A	1211	G
11	A	1215	C
11	A	1216	C
11	A	1217	A
11	A	1220	A
11	A	1224	G
11	A	1242	U
11	A	1247	C
11	A	1251	A
11	A	1253	A
11	A	1256	G
11	A	1257	G
11	A	1259	A
11	A	1263	U
11	A	1274	G
11	A	1275	G
11	A	1283	C
11	A	1288	U
11	A	1290	G
11	A	1294	G
11	A	1295	A
11	A	1301	A
11	A	1302	G
11	A	1303	C
11	A	1308	U
11	A	1322	G
11	A	1326	U
11	A	1333	U
11	A	1342	U
11	A	1354	G
11	A	1356	G
11	A	1357	A
11	A	1371	U

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Mol	Chain	Res	Type
11	A	1372	U
11	A	1378	A
11	A	1382	A
11	A	1397	U
11	A	1401	A
11	A	1402	A
11	A	1417	C
11	A	1418	C
11	A	1419	C
11	A	1420	G
11	A	1421	A
11	A	1422	G
11	A	1423	C
11	A	1424	G
11	A	1433	C
11	A	1435	C
11	A	1436	C
11	A	1437	C
11	A	1438	A
11	A	1442	U
11	A	1449	G
11	A	1454	A
11	A	1458	G
11	A	1463	U
11	A	1474	A
11	A	1487	A
11	A	1489	A
11	A	1490	G
11	A	1497	G
11	A	1498	A
11	A	1507	G
11	A	1508	A
11	A	1519	U
11	A	1521	C
11	A	1522	A
11	A	1523	C
11	A	1533	A
11	A	1534	C
11	A	1544	C
11	A	1552	G
11	A	1553	C
11	A	1556	A

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Mol	Chain	Res	Type
11	A	1558	C
11	A	1560	U
11	A	1565	C
11	A	1570	G
11	A	1579	A
11	A	1580	A
11	A	1582	C
11	A	1585	U
11	A	1587	G
11	A	1588	A
11	A	1600	G
11	A	1601	A
11	A	1603	G
11	A	1606	G
11	A	1619	A
11	A	1621	U
11	A	1623	A
11	A	1624	U
11	A	1638	G
11	A	1639	G
11	A	1648	G
11	A	1654	G
11	A	1661	A
11	A	1663	A
11	A	1665	G
11	A	1671	G
11	A	1687	C
11	A	1695	A
11	A	1697	A
11	A	1701	C
11	A	1706	G
11	A	1710	C
11	A	1712	A
11	A	1715	A
11	A	1719	A
11	A	1721	U
11	A	1722	G
11	A	1729	U
11	A	1749	G
11	A	1750	C
11	A	1752	C
11	A	1753	C

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Mol	Chain	Res	Type
11	A	1754	G
11	A	1755	C
11	A	1757	G
11	A	1758	G
11	A	1759	G
11	A	1760	G
11	A	1772	C
11	A	1773	C
11	A	1774	C
11	A	1775	U
11	A	1776	G
11	A	1777	G
11	A	1778	C
11	A	1779	G
11	A	1780	G
11	A	1781	A
11	A	1782	G
11	A	1783	C
11	A	1784	G
11	A	1805	G
11	A	1808	U
11	A	1813	A
11	A	1819	A
11	A	1822	A
11	A	1823	A
11	A	1826	G
11	A	1829	G
11	A	1835	A
11	A	1836	G
11	A	1837	G
11	A	1839	U
11	A	1849	G
11	A	1851	MA6
11	A	1861	G
11	A	1862	G
11	A	1863	A
11	A	1864	U
11	A	1865	C
51	w	8	U
51	w	10	G
51	w	11	C
51	w	12	G

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Mol	Chain	Res	Type
51	w	16	C
51	w	18	G
51	w	19	G
51	w	20	A
51	w	21	A
51	w	22	G
51	w	23	C
51	w	26	G
51	w	35	A
51	w	36	U
51	w	38	A
51	w	39	C
51	w	46	G
51	w	48	C
51	w	49	G
51	w	50	A
51	w	52	G
51	w	56	C
51	w	58	A
51	w	59	A
51	w	60	A
51	w	61	C
51	w	63	A
51	w	64	U
51	w	68	C
51	w	70	G
51	w	74	C
51	w	75	C
51	w	76	A

All (18) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
8	7	-31	C
8	7	-21	A
8	7	13	A
11	A	1	U
11	A	291	G
11	A	367	U
11	A	368	U
11	A	509	OMG
11	A	626	G

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Mol	Chain	Res	Type
11	A	644	OMG
11	A	683	OMG
11	A	688	U
11	A	694	G
11	A	716	G
11	A	731	G
11	A	797	C
11	A	1600	G
11	A	1836	G

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

29 non-standard protein/DNA/RNA residues are 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	$\#\|Z\| > 2$
11	PSU	A	822	11	18,21,22	1.03	1 (5%)	22,30,33	1.78	5 (22%)
11	OMC	A	174	57,11	19,22,23	0.55	0	26,31,34	0.68	0
11	B8N	A	1248	11	24,29,30	3.06	6 (25%)	29,42,45	1.72	6 (20%)
11	JMH	A	1219	57,11	18,22,23	2.93	5 (27%)	21,32,35	1.76	5 (23%)
11	PSU	A	823	11	18,21,22	1.09	1 (5%)	22,30,33	1.77	4 (18%)
11	MA6	A	1850	11	18,26,27	1.36	3 (16%)	19,38,41	3.13	2 (10%)
11	5MU	A	814	11	19,22,23	0.23	0	28,32,35	0.32	0
11	A2M	A	668	57,11	18,25,26	4.22	8 (44%)	18,36,39	3.79	6 (33%)
11	MA6	A	1851	11	18,26,27	1.36	3 (16%)	19,38,41	3.36	2 (10%)
11	OMG	A	683	11	18,26,27	2.56	8 (44%)	19,38,41	2.95	11 (57%)
11	PSU	A	612	11	18,21,22	1.03	1 (5%)	22,30,33	1.81	5 (22%)
11	OMC	A	1703	11	19,22,23	0.58	0	26,31,34	0.65	0
11	OMG	A	644	11	18,26,27	2.42	8 (44%)	19,38,41	2.62	8 (42%)
11	UR3	A	1830	11	19,22,23	2.82	7 (36%)	26,32,35	1.47	4 (15%)
11	OMG	A	509	57,11	18,26,27	2.63	8 (44%)	19,38,41	2.66	8 (42%)
11	6MZ	A	1832	57,11	18,25,26	1.74	3 (16%)	16,36,39	2.09	3 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
11	A2M	A	1678	11	18,25,26	4.34	9 (50%)	18,36,39	3.88	4 (22%)
11	A2M	A	484	11	18,25,26	4.25	9 (50%)	18,36,39	3.85	4 (22%)
11	PSU	A	1081	11	18,21,22	1.01	1 (5%)	22,30,33	1.82	3 (13%)
11	PSU	A	1243	11	18,21,22	1.04	1 (5%)	22,30,33	1.84	5 (22%)
11	A2M	A	1031	11	18,25,26	4.33	7 (38%)	18,36,39	3.74	4 (22%)
11	A2M	A	159	11	18,25,26	4.31	8 (44%)	18,36,39	3.85	5 (27%)
11	OMU	A	121	11	19,22,23	3.01	6 (31%)	26,31,34	1.67	5 (19%)
11	A2M	A	27	57,11	18,25,26	4.30	8 (44%)	18,36,39	3.81	5 (27%)
11	OMC	A	517	11	19,22,23	0.58	0	26,31,34	0.80	0
11	A2M	A	166	11	18,25,26	4.31	9 (50%)	18,36,39	3.77	4 (22%)
11	PSU	A	119	11	18,21,22	1.01	1 (5%)	22,30,33	1.61	4 (18%)
11	OMU	A	116	11	19,22,23	3.00	6 (31%)	26,31,34	1.58	4 (15%)
11	5MC	A	1374	11	18,22,23	0.59	0	26,32,35	0.64	0

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
11	PSU	A	822	11	-	2/7/25/26	0/2/2/2
11	OMC	A	174	57,11	-	0/9/27/28	0/2/2/2
11	B8N	A	1248	11	-	3/16/34/35	0/2/2/2
11	JMH	A	1219	57,11	-	1/7/25/26	0/2/2/2
11	PSU	A	823	11	-	0/7/25/26	0/2/2/2
11	MA6	A	1850	11	-	3/7/29/30	0/3/3/3
11	5MU	A	814	11	-	0/7/25/26	0/2/2/2
11	A2M	A	668	57,11	-	2/5/27/28	0/3/3/3
11	MA6	A	1851	11	-	6/7/29/30	0/3/3/3
11	OMG	A	683	11	-	2/5/27/28	0/3/3/3
11	PSU	A	612	11	-	0/7/25/26	0/2/2/2
11	OMC	A	1703	11	-	0/9/27/28	0/2/2/2
11	OMG	A	644	11	-	4/5/27/28	0/3/3/3
11	UR3	A	1830	11	-	2/7/25/26	0/2/2/2
11	OMG	A	509	57,11	-	3/5/27/28	0/3/3/3
11	6MZ	A	1832	57,11	-	2/5/27/28	0/3/3/3
11	A2M	A	1678	11	-	1/5/27/28	0/3/3/3
11	A2M	A	484	11	-	1/5/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	PSU	A	1081	11	-	1/7/25/26	0/2/2/2
11	PSU	A	1243	11	-	0/7/25/26	0/2/2/2
11	A2M	A	1031	11	-	1/5/27/28	0/3/3/3
11	A2M	A	159	11	-	1/5/27/28	0/3/3/3
11	OMU	A	121	11	-	0/9/27/28	0/2/2/2
11	A2M	A	27	57,11	-	1/5/27/28	0/3/3/3
11	OMC	A	517	11	-	0/9/27/28	0/2/2/2
11	A2M	A	166	11	-	1/5/27/28	0/3/3/3
11	PSU	A	119	11	-	2/7/25/26	0/2/2/2
11	OMU	A	116	11	-	1/9/27/28	0/2/2/2
11	5MC	A	1374	11	-	0/7/25/26	0/2/2/2

All (127) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	1031	A2M	C3'-C2'	-12.96	1.24	1.52
11	A	27	A2M	C3'-C2'	-12.90	1.24	1.52
11	A	1678	A2M	C3'-C2'	-12.77	1.24	1.52
11	A	166	A2M	C3'-C2'	-12.76	1.24	1.52
11	A	159	A2M	C3'-C2'	-12.66	1.24	1.52
11	A	484	A2M	C3'-C2'	-12.51	1.25	1.52
11	A	668	A2M	C3'-C2'	-12.40	1.25	1.52
11	A	1219	JMH	C2-N1	8.43	1.50	1.38
11	A	1248	B8N	C4-N3	-8.31	1.25	1.40
11	A	159	A2M	O4'-C1'	7.80	1.52	1.41
11	A	1678	A2M	O4'-C1'	7.63	1.51	1.41
11	A	1830	UR3	C2-N1	7.63	1.49	1.38
11	A	166	A2M	O4'-C1'	7.61	1.51	1.41
11	A	1248	B8N	C6-N1	7.56	1.55	1.36
11	A	27	A2M	O4'-C1'	7.54	1.51	1.41
11	A	1031	A2M	O4'-C1'	7.53	1.51	1.41
11	A	484	A2M	O4'-C1'	7.53	1.51	1.41
11	A	116	OMU	C2-N1	7.06	1.49	1.38
11	A	121	OMU	C2-N1	7.06	1.49	1.38
11	A	116	OMU	C2-N3	7.04	1.50	1.38
11	A	121	OMU	C2-N3	6.98	1.50	1.38
11	A	668	A2M	O4'-C4'	-6.93	1.29	1.45
11	A	668	A2M	O4'-C1'	6.89	1.50	1.41
11	A	1678	A2M	O4'-C4'	-6.68	1.30	1.45
11	A	159	A2M	O4'-C4'	-6.46	1.30	1.45
11	A	166	A2M	O4'-C4'	-6.43	1.30	1.45
11	A	1031	A2M	O4'-C4'	-6.43	1.30	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	484	A2M	O4'-C4'	-6.30	1.30	1.45
11	A	27	A2M	O4'-C4'	-6.24	1.31	1.45
11	A	121	OMU	C6-C5	6.20	1.49	1.35
11	A	116	OMU	C6-C5	6.13	1.49	1.35
11	A	1830	UR3	C6-C5	6.10	1.49	1.35
11	A	1219	JMH	C6-C5	5.98	1.49	1.35
11	A	1248	B8N	C6-C5	5.53	1.42	1.34
11	A	1832	6MZ	C6-N6	5.35	1.43	1.35
11	A	509	OMG	C2-N3	5.22	1.45	1.33
11	A	1678	A2M	C3'-C4'	5.21	1.66	1.53
11	A	509	OMG	C4-N3	5.17	1.49	1.37
11	A	159	A2M	C3'-C4'	5.14	1.66	1.53
11	A	1219	JMH	C2-N3	5.12	1.48	1.39
11	A	484	A2M	C3'-C4'	5.09	1.66	1.53
11	A	509	OMG	C2-N2	5.09	1.46	1.34
11	A	1830	UR3	C2-N3	5.04	1.48	1.39
11	A	683	OMG	C2-N3	5.01	1.45	1.33
11	A	1031	A2M	C3'-C4'	5.01	1.65	1.53
11	A	683	OMG	C2-N2	5.01	1.46	1.34
11	A	1248	B8N	C2-N1	5.00	1.54	1.39
11	A	166	A2M	C3'-C4'	4.99	1.65	1.53
11	A	27	A2M	C3'-C4'	4.98	1.65	1.53
11	A	668	A2M	C3'-C4'	4.97	1.65	1.53
11	A	644	OMG	C2-N2	4.94	1.45	1.34
11	A	644	OMG	C4-N3	4.88	1.49	1.37
11	A	683	OMG	C4-N3	4.80	1.49	1.37
11	A	644	OMG	C2-N3	4.78	1.44	1.33
11	A	121	OMU	C4-N3	4.09	1.45	1.38
11	A	116	OMU	C4-N3	4.04	1.45	1.38
11	A	1248	B8N	C1'-C5	3.68	1.58	1.50
11	A	683	OMG	C6-N1	3.56	1.43	1.37
11	A	509	OMG	C6-N1	3.50	1.43	1.37
11	A	1248	B8N	O2-C2	-3.46	1.16	1.22
11	A	484	A2M	O2'-C2'	3.45	1.51	1.42
11	A	1031	A2M	O2'-C2'	3.44	1.51	1.42
11	A	823	PSU	C6-C5	3.42	1.39	1.35
11	A	119	PSU	C6-C5	3.42	1.39	1.35
11	A	166	A2M	O2'-C2'	3.42	1.51	1.42
11	A	27	A2M	O2'-C2'	3.41	1.51	1.42
11	A	159	A2M	O2'-C2'	3.39	1.51	1.42
11	A	1678	A2M	O2'-C2'	3.37	1.51	1.42
11	A	1243	PSU	C6-C5	3.36	1.39	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	668	A2M	O2'-C2'	3.31	1.51	1.42
11	A	1851	MA6	C2-N3	3.17	1.37	1.32
11	A	822	PSU	C6-C5	3.17	1.39	1.35
11	A	1850	MA6	C2-N3	3.17	1.37	1.32
11	A	484	A2M	C6-N6	3.14	1.45	1.34
11	A	1678	A2M	C6-N6	3.12	1.45	1.34
11	A	159	A2M	C6-N6	3.12	1.45	1.34
11	A	166	A2M	C6-N6	3.10	1.45	1.34
11	A	1031	A2M	C6-N6	3.10	1.45	1.34
11	A	668	A2M	C6-N6	3.09	1.45	1.34
11	A	1081	PSU	C6-C5	3.08	1.38	1.35
11	A	27	A2M	C6-N6	3.07	1.45	1.34
11	A	1830	UR3	C6-N1	3.02	1.45	1.38
11	A	612	PSU	C6-C5	2.98	1.38	1.35
11	A	509	OMG	C5-C6	2.91	1.53	1.47
11	A	1851	MA6	C5-C4	-2.90	1.33	1.40
11	A	644	OMG	C6-N1	2.90	1.42	1.37
11	A	668	A2M	C5-C4	-2.86	1.33	1.40
11	A	1219	JMH	C6-N1	2.82	1.44	1.38
11	A	1850	MA6	C5-C4	-2.82	1.33	1.40
11	A	1031	A2M	C5-C4	-2.80	1.33	1.40
11	A	166	A2M	C5-C4	-2.79	1.33	1.40
11	A	1678	A2M	C5-C4	-2.79	1.33	1.40
11	A	27	A2M	C5-C4	-2.76	1.33	1.40
11	A	484	A2M	C5-C4	-2.71	1.33	1.40
11	A	683	OMG	C5-C6	2.69	1.52	1.47
11	A	159	A2M	C5-C4	-2.68	1.33	1.40
11	A	121	OMU	C6-N1	2.59	1.44	1.38
11	A	116	OMU	C6-N1	2.59	1.44	1.38
11	A	683	OMG	C2-N1	2.54	1.44	1.37
11	A	1219	JMH	C5-C4	2.49	1.48	1.42
11	A	509	OMG	O6-C6	-2.47	1.18	1.23
11	A	644	OMG	C5-C6	2.45	1.52	1.47
11	A	683	OMG	C5-C4	-2.44	1.36	1.43
11	A	644	OMG	O6-C6	-2.44	1.18	1.23
11	A	1832	6MZ	C5-C4	-2.42	1.34	1.40
11	A	644	OMG	C5-C4	-2.40	1.37	1.43
11	A	683	OMG	O6-C6	-2.39	1.18	1.23
11	A	509	OMG	C2-N1	2.36	1.43	1.37
11	A	509	OMG	C5-C4	-2.34	1.37	1.43
11	A	1830	UR3	O4-C4	-2.32	1.18	1.23
11	A	1832	6MZ	C9-N6	-2.27	1.41	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	644	OMG	C2-N1	2.22	1.43	1.37
11	A	1830	UR3	O2-C2	-2.21	1.18	1.22
11	A	1830	UR3	C5-C4	2.21	1.49	1.43
11	A	484	A2M	C2-N3	2.21	1.35	1.32
11	A	121	OMU	C5-C4	2.17	1.48	1.43
11	A	166	A2M	O3'-C3'	2.10	1.47	1.43
11	A	27	A2M	C2-N3	2.10	1.35	1.32
11	A	668	A2M	O3'-C3'	2.09	1.47	1.43
11	A	159	A2M	C2-N3	2.09	1.35	1.32
11	A	1678	A2M	C2-N3	2.09	1.35	1.32
11	A	116	OMU	C5-C4	2.07	1.48	1.43
11	A	1678	A2M	O3'-C3'	2.06	1.47	1.43
11	A	166	A2M	C2-N3	2.04	1.35	1.32
11	A	1851	MA6	C4-N3	2.03	1.38	1.35
11	A	484	A2M	O3'-C3'	2.03	1.47	1.43
11	A	1850	MA6	C4-N3	2.01	1.38	1.35

All (116) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	1851	MA6	N1-C6-N6	-13.20	103.17	117.06
11	A	1850	MA6	N1-C6-N6	-12.41	103.99	117.06
11	A	1678	A2M	C1'-N9-C4	10.39	144.89	126.64
11	A	484	A2M	C1'-N9-C4	10.33	144.79	126.64
11	A	27	A2M	C1'-N9-C4	10.24	144.64	126.64
11	A	159	A2M	C1'-N9-C4	10.17	144.50	126.64
11	A	166	A2M	C1'-N9-C4	9.75	143.77	126.64
11	A	1031	A2M	C1'-N9-C4	9.75	143.77	126.64
11	A	668	A2M	C1'-N9-C4	9.62	143.54	126.64
11	A	668	A2M	C5-C6-N6	9.09	134.16	120.35
11	A	1678	A2M	C5-C6-N6	9.07	134.14	120.35
11	A	166	A2M	C5-C6-N6	8.96	133.96	120.35
11	A	1031	A2M	C5-C6-N6	8.93	133.93	120.35
11	A	159	A2M	C5-C6-N6	8.92	133.91	120.35
11	A	484	A2M	C5-C6-N6	8.77	133.69	120.35
11	A	27	A2M	C5-C6-N6	8.76	133.66	120.35
11	A	683	OMG	O2'-C2'-C1'	7.54	124.04	109.09
11	A	644	OMG	O2'-C2'-C1'	6.16	121.31	109.09
11	A	668	A2M	N6-C6-N1	-6.09	105.93	118.57
11	A	1678	A2M	N6-C6-N1	-6.06	105.99	118.57
11	A	159	A2M	N6-C6-N1	-6.03	106.06	118.57
11	A	509	OMG	O2'-C2'-C1'	6.01	121.02	109.09

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	1031	A2M	N6-C6-N1	-5.98	106.17	118.57
11	A	166	A2M	N6-C6-N1	-5.97	106.17	118.57
11	A	484	A2M	N6-C6-N1	-5.96	106.20	118.57
11	A	27	A2M	N6-C6-N1	-5.89	106.34	118.57
11	A	1832	6MZ	N3-C2-N1	-5.81	119.60	128.68
11	A	166	A2M	N3-C2-N1	-5.80	119.61	128.68
11	A	1851	MA6	N3-C2-N1	-5.75	119.70	128.68
11	A	1678	A2M	N3-C2-N1	-5.71	119.76	128.68
11	A	644	OMG	O3'-C3'-C4'	5.68	127.46	111.05
11	A	27	A2M	N3-C2-N1	-5.66	119.83	128.68
11	A	1031	A2M	N3-C2-N1	-5.63	119.88	128.68
11	A	484	A2M	N3-C2-N1	-5.61	119.91	128.68
11	A	159	A2M	N3-C2-N1	-5.44	120.18	128.68
11	A	668	A2M	N3-C2-N1	-5.40	120.24	128.68
11	A	1850	MA6	N3-C2-N1	-5.24	120.48	128.68
11	A	121	OMU	C4-N3-C2	-5.13	119.82	126.58
11	A	509	OMG	O3'-C3'-C4'	5.07	125.71	111.05
11	A	1248	B8N	C5-C4-N3	4.90	125.25	116.17
11	A	1081	PSU	C4-N3-C2	-4.80	119.43	126.34
11	A	1243	PSU	N1-C2-N3	4.80	120.56	115.13
11	A	683	OMG	O3'-C3'-C2'	4.66	124.39	111.17
11	A	1243	PSU	C4-N3-C2	-4.64	119.65	126.34
11	A	116	OMU	C4-N3-C2	-4.63	120.47	126.58
11	A	822	PSU	C4-N3-C2	-4.59	119.72	126.34
11	A	1081	PSU	N1-C2-N3	4.57	120.31	115.13
11	A	823	PSU	C4-N3-C2	-4.55	119.78	126.34
11	A	612	PSU	N1-C2-N3	4.55	120.29	115.13
11	A	822	PSU	N1-C2-N3	4.50	120.22	115.13
11	A	823	PSU	N1-C2-N3	4.47	120.20	115.13
11	A	612	PSU	C4-N3-C2	-4.47	119.90	126.34
11	A	1830	UR3	C4-N3-C2	-4.46	120.36	124.56
11	A	1832	6MZ	C2-N1-C6	4.40	120.36	116.59
11	A	119	PSU	N1-C2-N3	4.19	119.88	115.13
11	A	119	PSU	C4-N3-C2	-4.10	120.43	126.34
11	A	1219	JMH	C1'-N1-C2	4.08	123.88	116.99
11	A	1248	B8N	C4-N3-C2	-4.05	120.33	125.46
11	A	1219	JMH	C6-N1-C2	-3.87	118.32	121.79
11	A	509	OMG	O3'-C3'-C2'	3.86	122.12	111.17
11	A	644	OMG	O3'-C3'-C2'	3.78	121.89	111.17
11	A	121	OMU	N3-C2-N1	3.71	119.82	114.89
11	A	683	OMG	O3'-C3'-C4'	3.71	121.77	111.05
11	A	1219	JMH	O2-C2-N3	-3.71	116.12	121.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	683	OMG	C5-C6-N1	3.69	120.48	113.95
11	A	683	OMG	CM2-O2'-C2'	3.69	124.20	114.52
11	A	509	OMG	C5-C6-N1	3.65	120.40	113.95
11	A	1832	6MZ	C1'-N9-C4	-3.44	120.60	126.64
11	A	116	OMU	N3-C2-N1	3.39	119.38	114.89
11	A	1830	UR3	C1'-N1-C2	3.38	122.69	116.99
11	A	509	OMG	C2-N1-C6	-3.37	118.89	125.10
11	A	121	OMU	C5-C4-N3	3.29	119.76	114.84
11	A	683	OMG	C2-N1-C6	-3.26	119.09	125.10
11	A	116	OMU	C5-C4-N3	3.19	119.62	114.84
11	A	683	OMG	C5'-C4'-C3'	3.14	126.96	115.18
11	A	509	OMG	C5'-C4'-C3'	3.11	126.82	115.18
11	A	1248	B8N	C31-N3-C4	3.10	121.88	117.31
11	A	1248	B8N	N3-C2-N1	3.09	121.12	116.76
11	A	612	PSU	O2-C2-N1	-2.94	119.55	122.79
11	A	116	OMU	O4-C4-C5	-2.81	120.22	125.16
11	A	823	PSU	O2-C2-N1	-2.76	119.75	122.79
11	A	1830	UR3	C6-N1-C2	-2.75	119.32	121.79
11	A	1243	PSU	O2-C2-N1	-2.73	119.78	122.79
11	A	121	OMU	O4-C4-C5	-2.73	120.36	125.16
11	A	644	OMG	C5-C6-N1	2.68	118.68	113.95
11	A	1081	PSU	O2-C2-N1	-2.61	119.92	122.79
11	A	644	OMG	O5'-C5'-C4'	2.60	117.85	108.99
11	A	159	A2M	C2'-C3'-C4'	2.55	107.53	101.99
11	A	822	PSU	O2-C2-N1	-2.52	120.01	122.79
11	A	612	PSU	C6-N1-C2	-2.50	120.13	122.68
11	A	509	OMG	C8-N7-C5	2.49	107.74	102.99
11	A	1219	JMH	O3'-C3'-C2'	2.45	119.73	111.82
11	A	1248	B8N	O4-C4-N3	-2.40	115.90	119.98
11	A	823	PSU	C6-N1-C2	-2.36	120.27	122.68
11	A	683	OMG	N2-C2-N1	2.36	121.73	116.71
11	A	1830	UR3	O2-C2-N3	-2.34	118.05	121.34
11	A	509	OMG	O6-C6-C5	-2.32	119.83	124.37
11	A	119	PSU	C6-N1-C2	-2.32	120.31	122.68
11	A	1243	PSU	C6-N1-C2	-2.31	120.32	122.68
11	A	683	OMG	O6-C6-C5	-2.31	119.86	124.37
11	A	644	OMG	C5'-C4'-C3'	2.31	123.83	115.18
11	A	644	OMG	N1-C2-N3	-2.25	119.12	123.32
11	A	119	PSU	O2-C2-N1	-2.23	120.34	122.79
11	A	668	A2M	C3'-C2'-C1'	2.20	107.03	102.89
11	A	822	PSU	O4'-C1'-C2'	2.19	108.23	105.14
11	A	822	PSU	C6-N1-C2	-2.17	120.46	122.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	A	612	PSU	O4'-C1'-C2'	2.14	108.16	105.14
11	A	27	A2M	O4'-C1'-C2'	-2.10	102.95	106.59
11	A	1219	JMH	O3'-C3'-C4'	2.09	117.09	111.05
11	A	668	A2M	C2'-C3'-C4'	2.08	106.52	101.99
11	A	644	OMG	O4'-C4'-C5'	2.07	116.19	109.37
11	A	1248	B8N	O4'-C1'-C2'	2.06	108.05	105.14
11	A	683	OMG	C8-N7-C5	2.05	106.90	102.99
11	A	683	OMG	N1-C2-N3	-2.04	119.51	123.32
11	A	121	OMU	O2-C2-N1	-2.02	120.10	122.79
11	A	1243	PSU	C6-C5-C4	2.00	119.60	118.20

There are no chirality outliers.

All (40) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	A	27	A2M	C1'-C2'-O2'-CM'
11	A	116	OMU	C1'-C2'-O2'-CM2
11	A	166	A2M	C1'-C2'-O2'-CM'
11	A	484	A2M	C1'-C2'-O2'-CM'
11	A	509	OMG	C1'-C2'-O2'-CM2
11	A	644	OMG	C4'-C5'-O5'-P
11	A	644	OMG	C3'-C4'-C5'-O5'
11	A	644	OMG	C1'-C2'-O2'-CM2
11	A	1031	A2M	C1'-C2'-O2'-CM'
11	A	1678	A2M	C1'-C2'-O2'-CM'
11	A	1832	6MZ	N1-C6-N6-C9
11	A	1850	MA6	C5-C6-N6-C9
11	A	1850	MA6	C5-C6-N6-C10
11	A	1851	MA6	O4'-C4'-C5'-O5'
11	A	1851	MA6	C5-C6-N6-C10
11	A	683	OMG	C1'-C2'-O2'-CM2
11	A	1248	B8N	C31-C32-C33-C34
11	A	1248	B8N	C31-C32-C33-N34
11	A	1830	UR3	O4'-C1'-N1-C2
11	A	509	OMG	C3'-C4'-C5'-O5'
11	A	668	A2M	O4'-C4'-C5'-O5'
11	A	1851	MA6	C3'-C4'-C5'-O5'
11	A	668	A2M	C3'-C4'-C5'-O5'
11	A	822	PSU	C3'-C4'-C5'-O5'
11	A	822	PSU	O4'-C4'-C5'-O5'
11	A	683	OMG	C3'-C4'-C5'-O5'
11	A	1850	MA6	N1-C6-N6-C10

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Mol	Chain	Res	Type	Atoms
11	A	1830	UR3	O4'-C1'-N1-C6
11	A	1851	MA6	N1-C6-N6-C10
11	A	644	OMG	O4'-C4'-C5'-O5'
11	A	1851	MA6	C5-C6-N6-C9
11	A	159	A2M	C3'-C4'-C5'-O5'
11	A	119	PSU	O4'-C4'-C5'-O5'
11	A	1832	6MZ	C5-C6-N6-C9
11	A	1851	MA6	C4'-C5'-O5'-P
11	A	1248	B8N	O4'-C1'-C5-C4
11	A	1081	PSU	C4'-C5'-O5'-P
11	A	509	OMG	O4'-C4'-C5'-O5'
11	A	119	PSU	C3'-C4'-C5'-O5'
11	A	1219	JMH	C2'-C1'-N1-C2

There are no ring outliers.

13 monomers are involved in 19 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	A	1219	JMH	1	0
11	A	1850	MA6	1	0
11	A	814	5MU	1	0
11	A	1830	UR3	1	0
11	A	509	OMG	5	0
11	A	1678	A2M	2	0
11	A	484	A2M	1	0
11	A	1031	A2M	1	0
11	A	121	OMU	1	0
11	A	27	A2M	1	0
11	A	166	A2M	2	0
11	A	119	PSU	1	0
11	A	116	OMU	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 93 ligands modelled in this entry, 92 are monoatomic - leaving 1 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
55	GTP	0	2001	57,56	26,34,34	1.12	2 (7%)	32,54,54	1.78	6 (18%)

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
55	GTP	0	2001	57,56	-	1/18/38/38	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
55	0	2001	GTP	C5-C6	-3.92	1.39	1.47
55	0	2001	GTP	C2-N3	2.08	1.38	1.33

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
55	0	2001	GTP	PA-O3A-PB	-5.04	115.52	132.83
55	0	2001	GTP	PB-O3B-PG	-3.25	121.67	132.83
55	0	2001	GTP	C5-C6-N1	3.24	119.67	113.95
55	0	2001	GTP	C8-N7-C5	3.09	108.87	102.99
55	0	2001	GTP	C2-N1-C6	-2.88	119.79	125.10
55	0	2001	GTP	C3'-C2'-C1'	2.71	105.06	100.98

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
55	0	2001	GTP	PB-O3B-PG-O2G

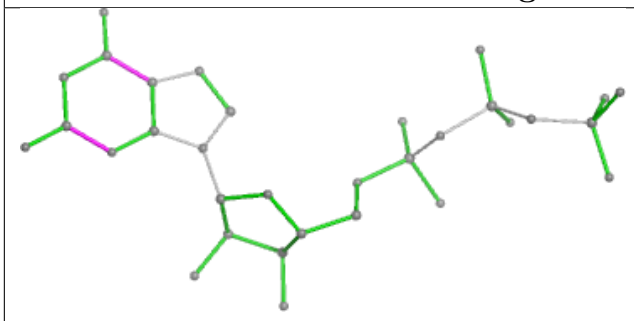
There are no ring outliers.

1 monomer is involved in 2 short contacts:

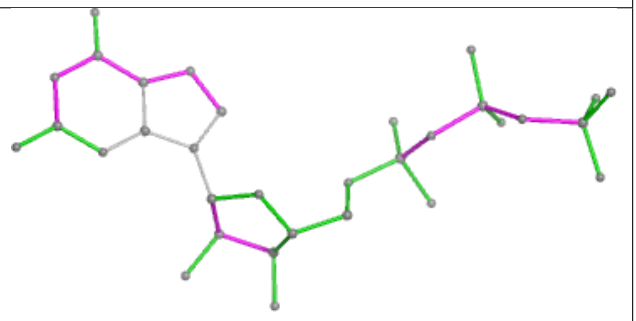
Mol	Chain	Res	Type	Clashes	Symm-Clashes
55	0	2001	GTP	2	0

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 then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

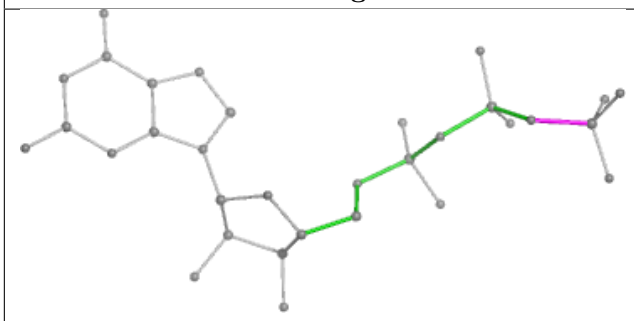
Ligand GTP 0 2001



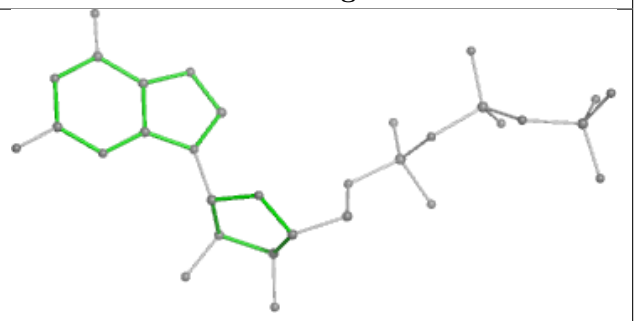
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

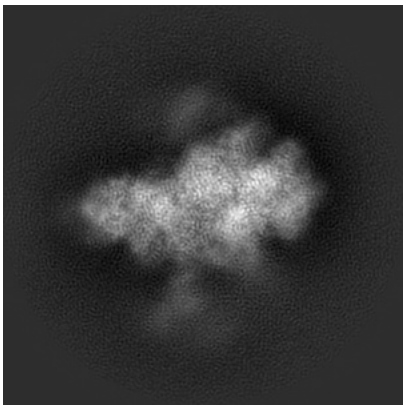
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-17698. These allow visual inspection of the internal detail of the map and identification of artifacts.

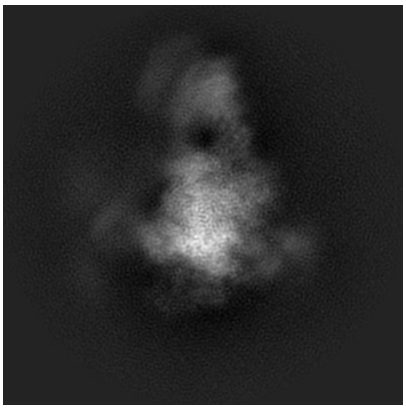
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

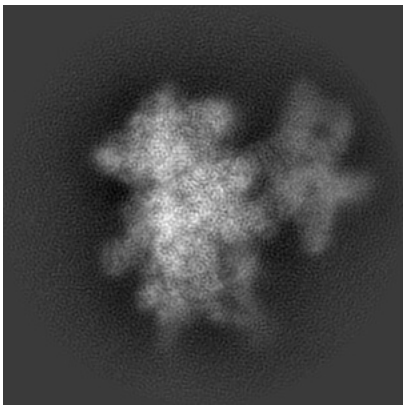
6.1.1 Primary map



X

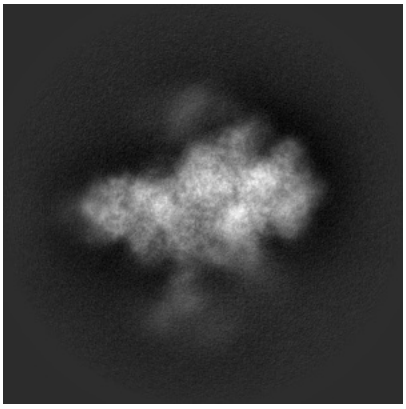


Y

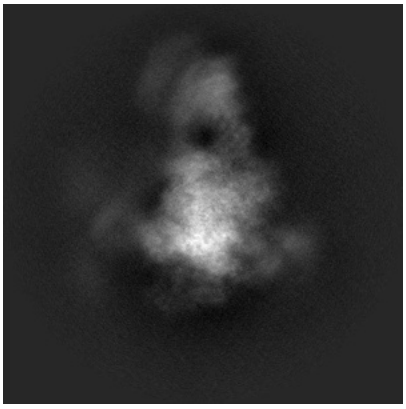


Z

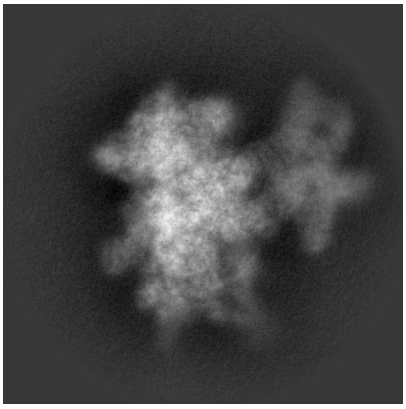
6.1.2 Raw map



X



Y

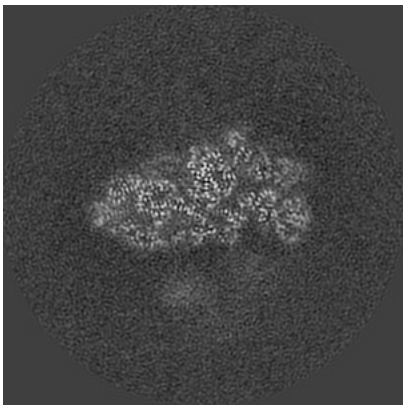


Z

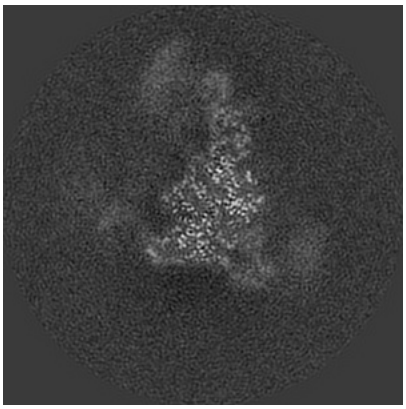
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

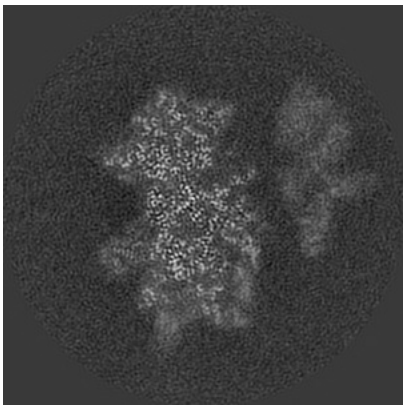
6.2.1 Primary map



X Index: 180

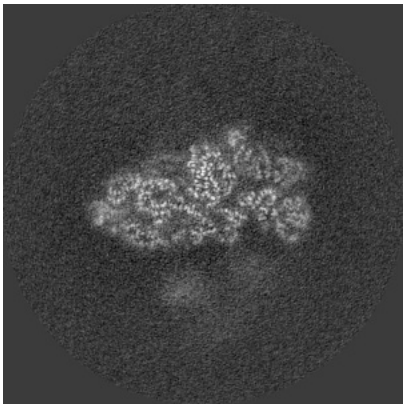


Y Index: 180

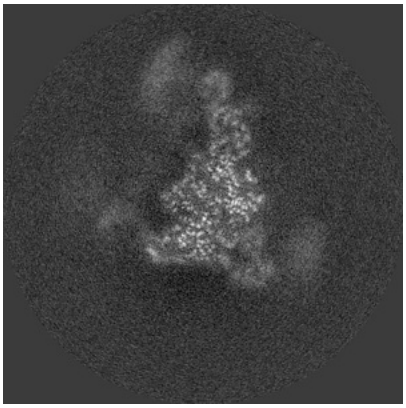


Z Index: 180

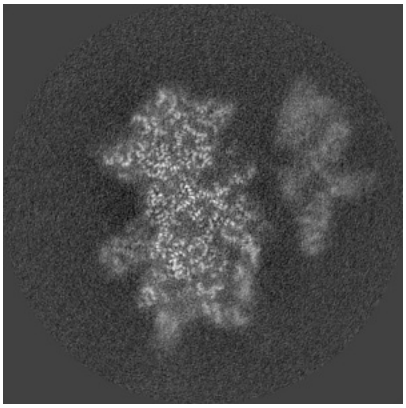
6.2.2 Raw map



X Index: 180



Y Index: 180

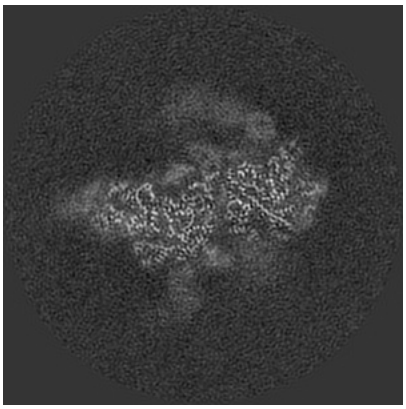


Z Index: 180

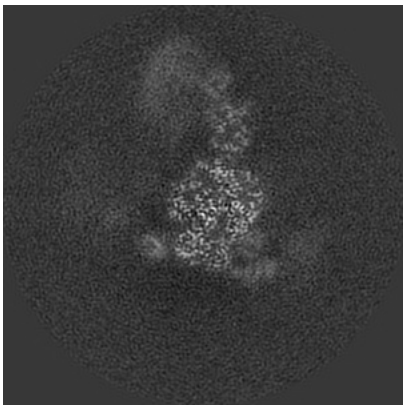
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

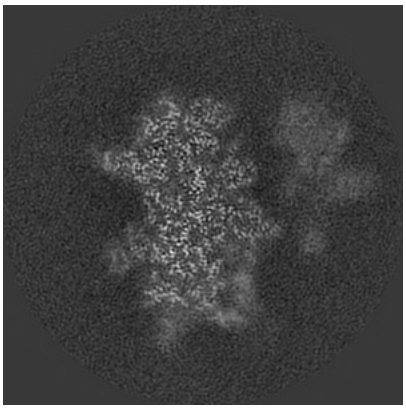
6.3.1 Primary map



X Index: 147

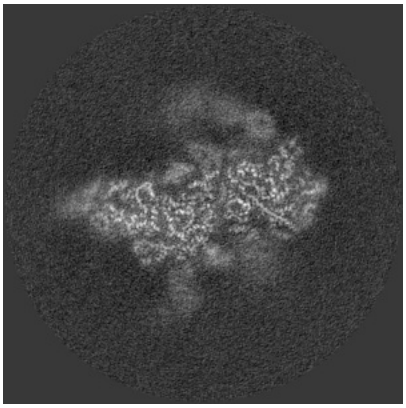


Y Index: 185

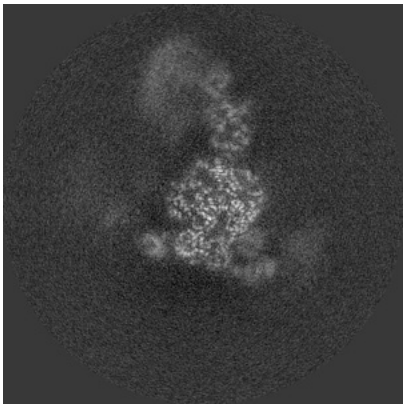


Z Index: 174

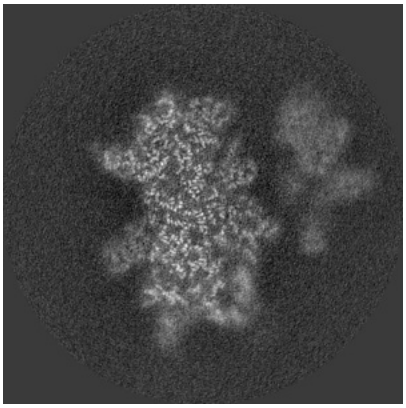
6.3.2 Raw map



X Index: 147



Y Index: 185

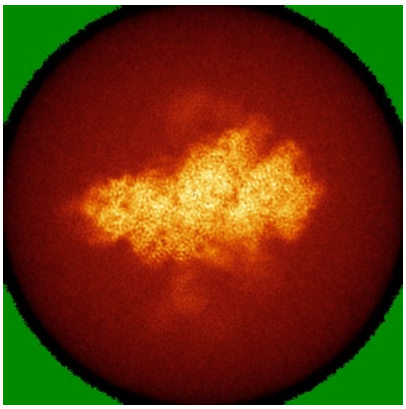


Z Index: 175

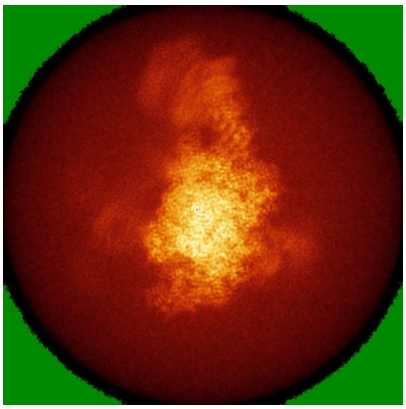
The images above show the largest variance slices of the map in three orthogonal directions.

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

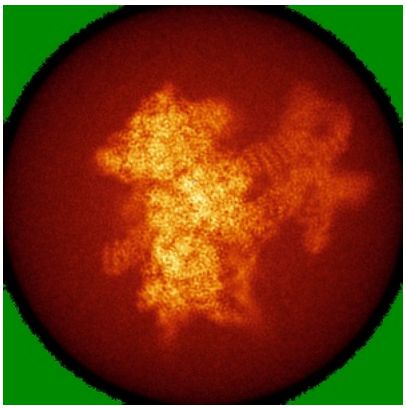
6.4.1 Primary map



X

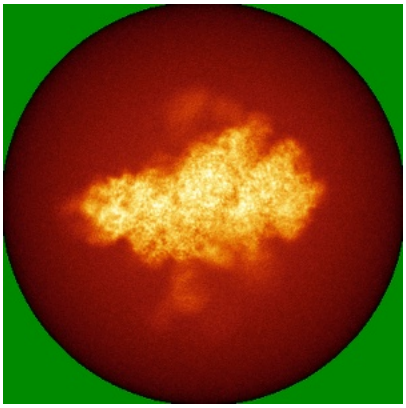


Y

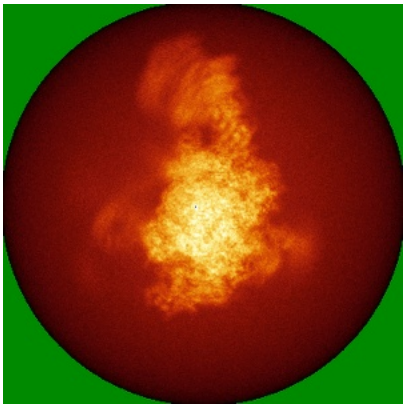


Z

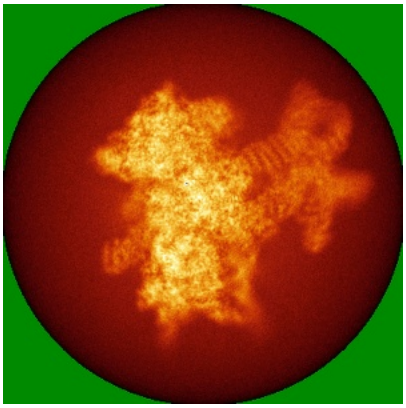
6.4.2 Raw map



X



Y

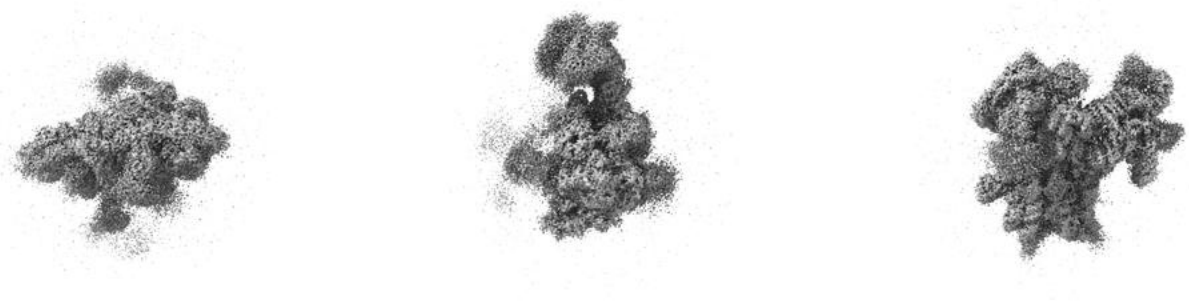


Z

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

6.5 Orthogonal surface views (i)

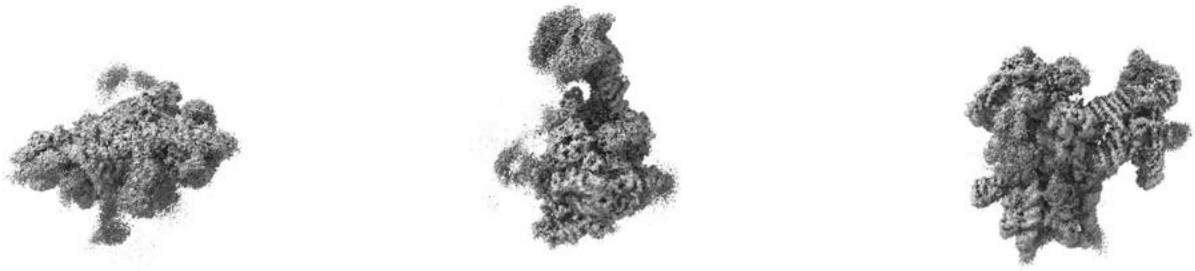
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 3.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

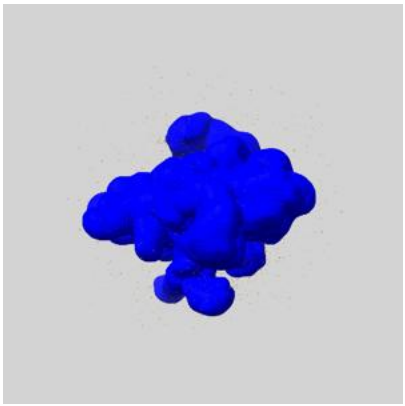
6.6 Mask visualisation

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

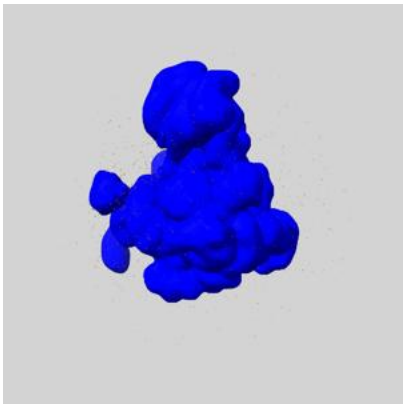
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

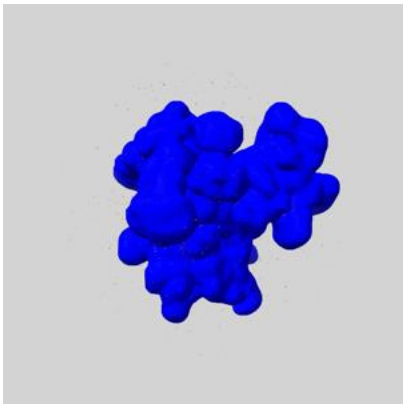
6.6.1 emd_17698_msk_1.map



X



Y

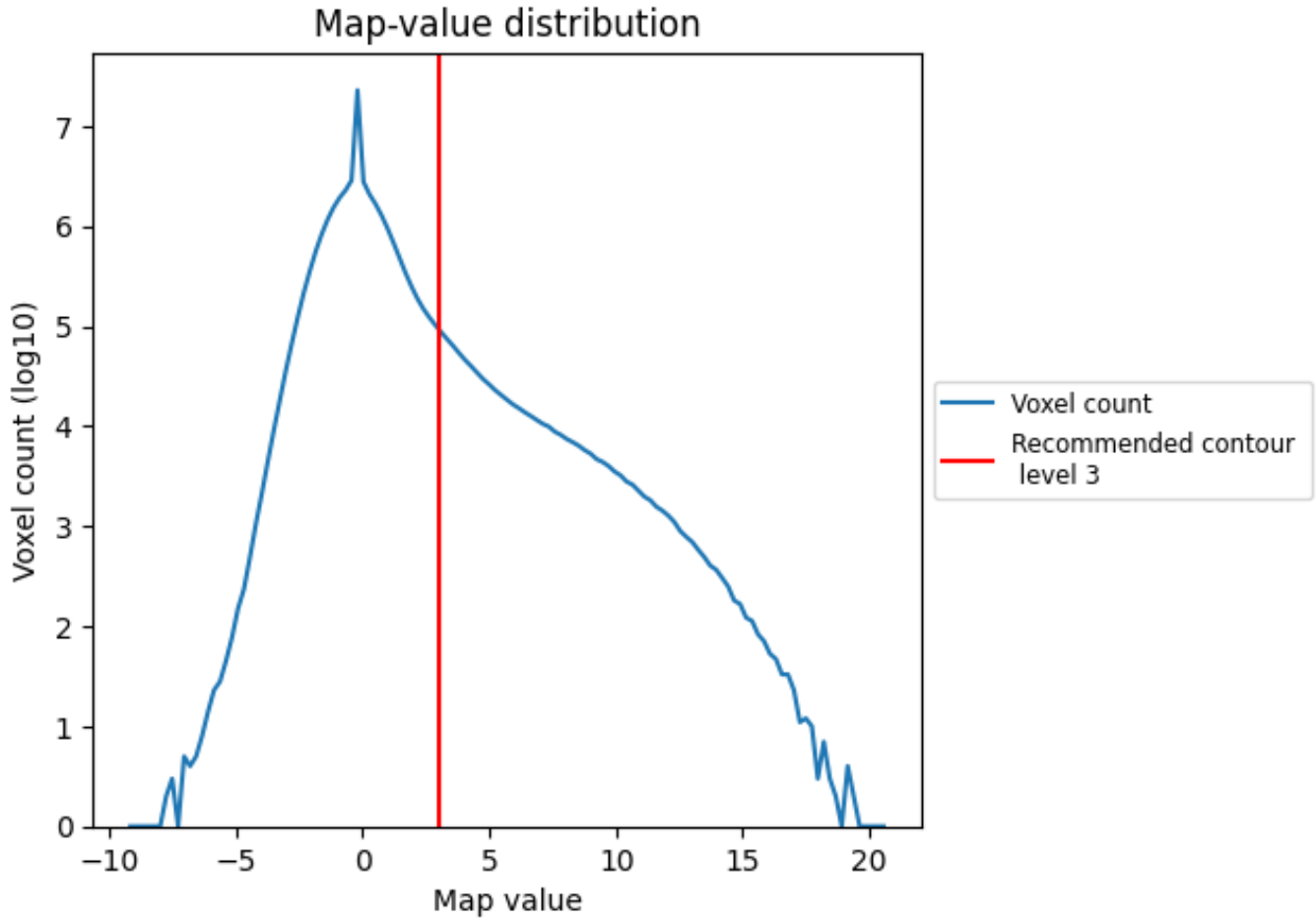


Z

7 Map analysis

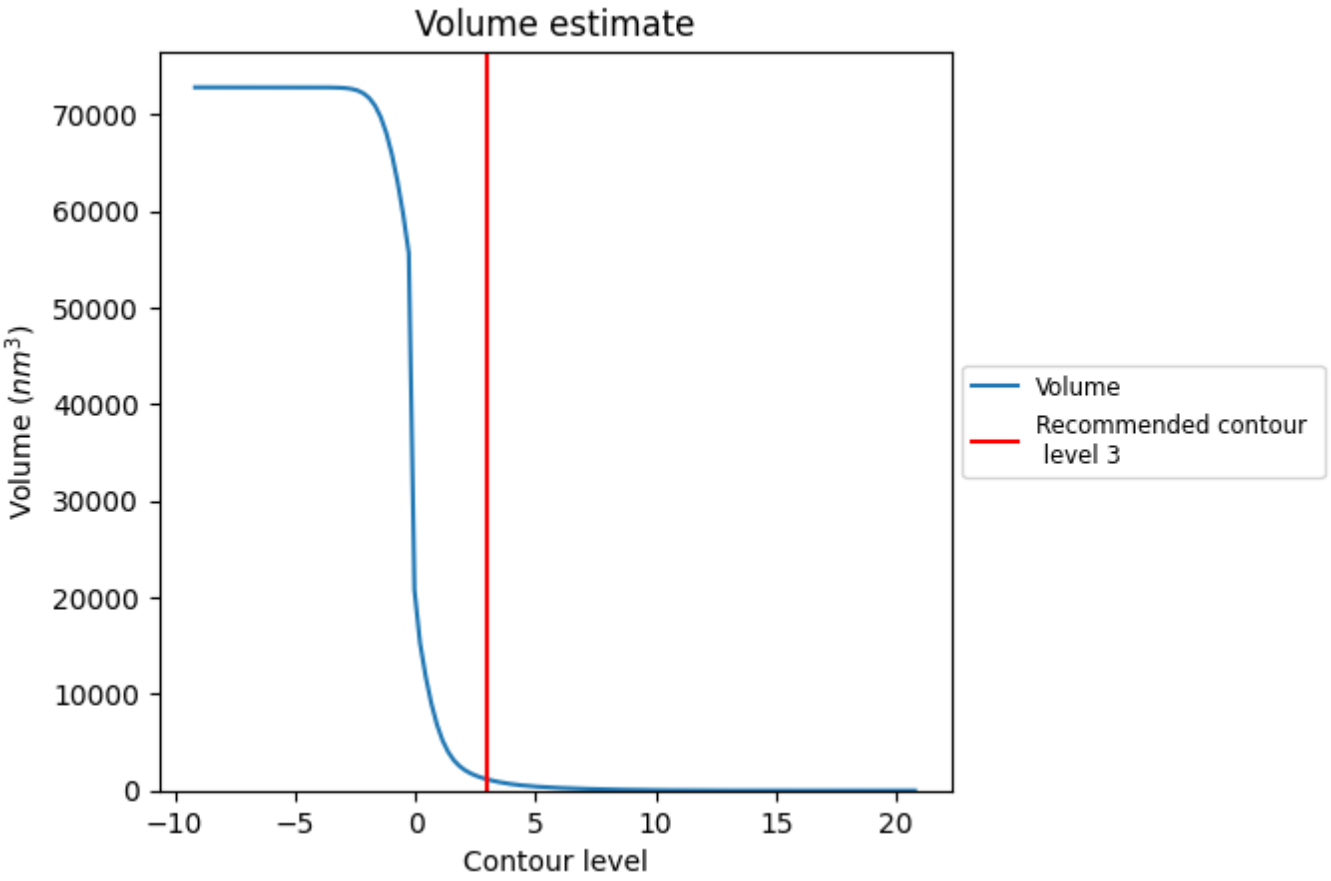
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

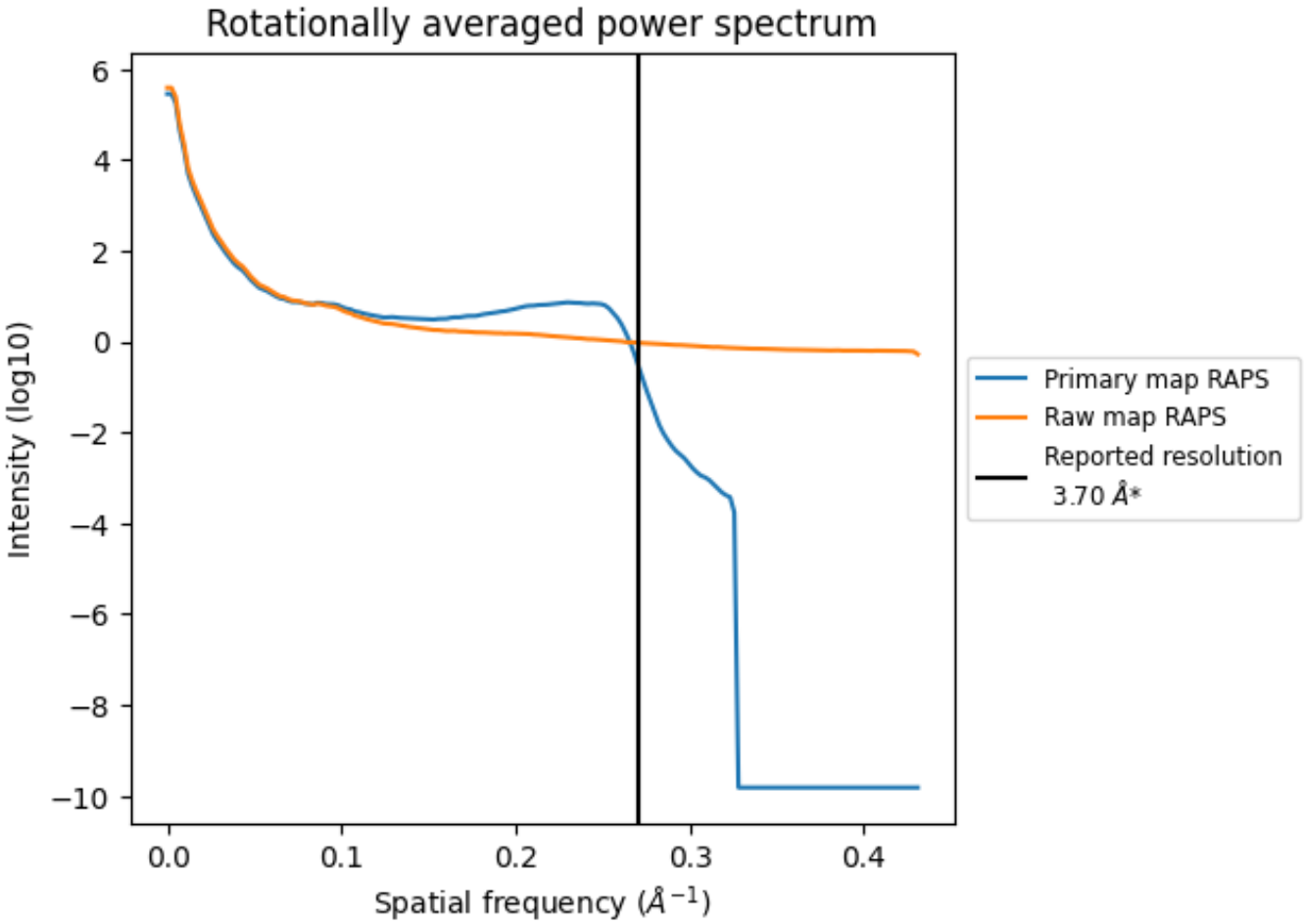
7.2 Volume estimate



The volume at the recommended contour level is 1159 nm^3; this corresponds to an approximate mass of 1047 kDa.

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

7.3 Rotationally averaged power spectrum (i)

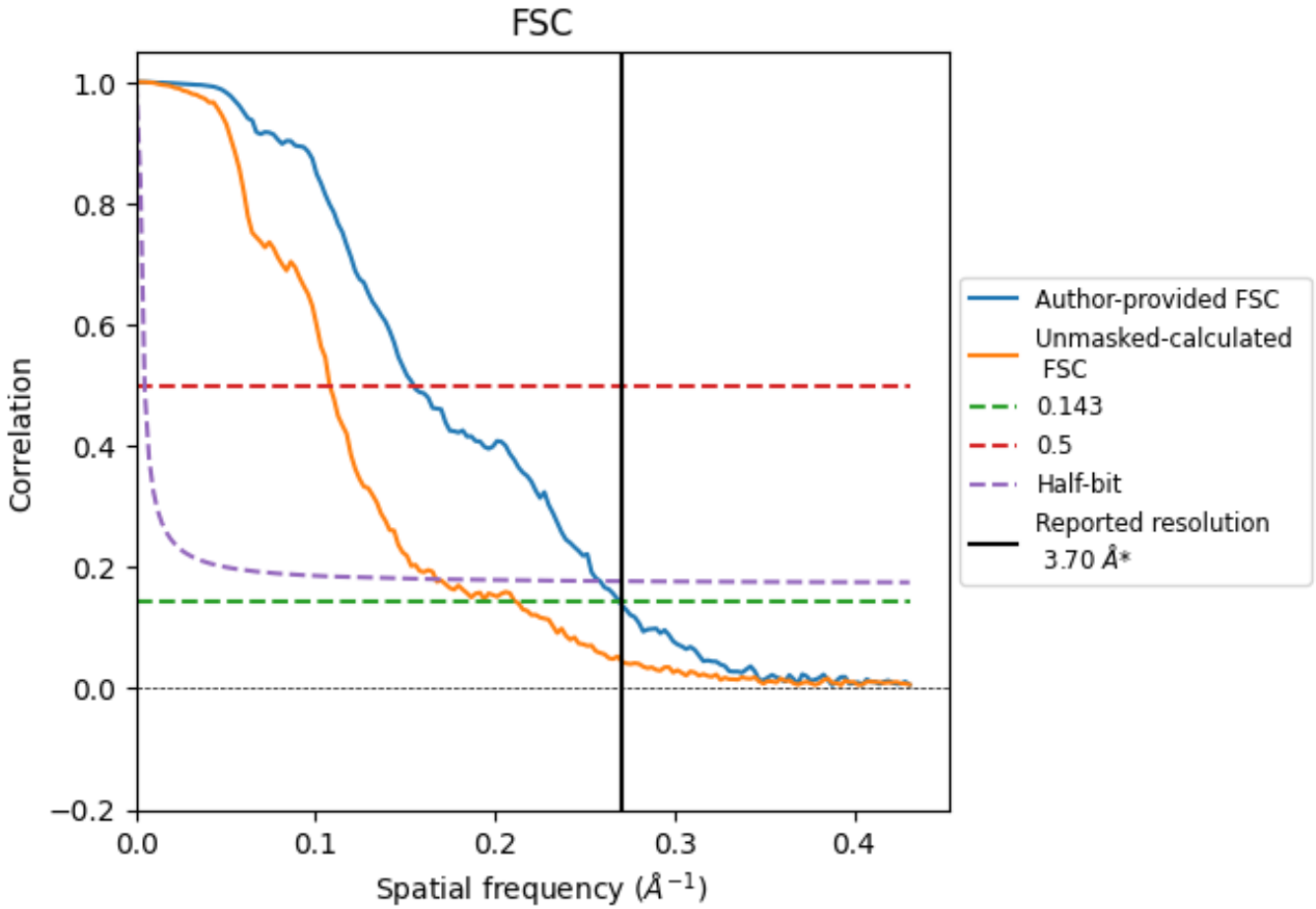


*Reported resolution corresponds to spatial frequency of 0.270 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.270 Å^{-1}

8.2 Resolution estimates (i)

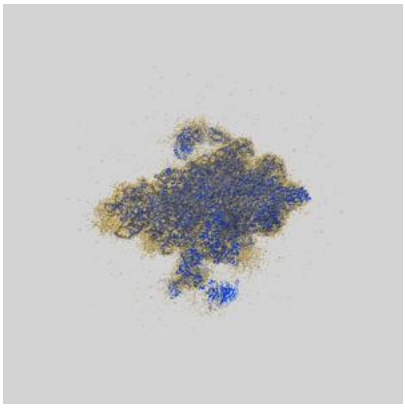
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.71	6.47	3.87
Unmasked-calculated*	4.73	9.28	5.99

*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 4.73 differs from the reported value 3.7 by more than 10 %

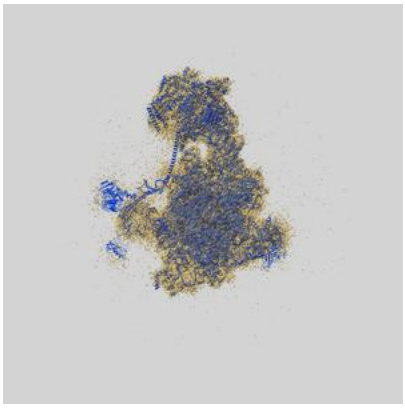
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-17698 and PDB model 8PJ3. Per-residue inclusion information can be found in section 3 on page 15.

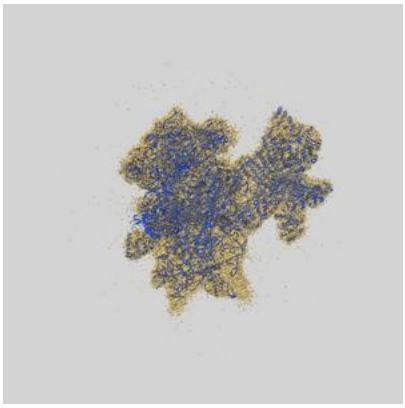
9.1 Map-model overlay



X



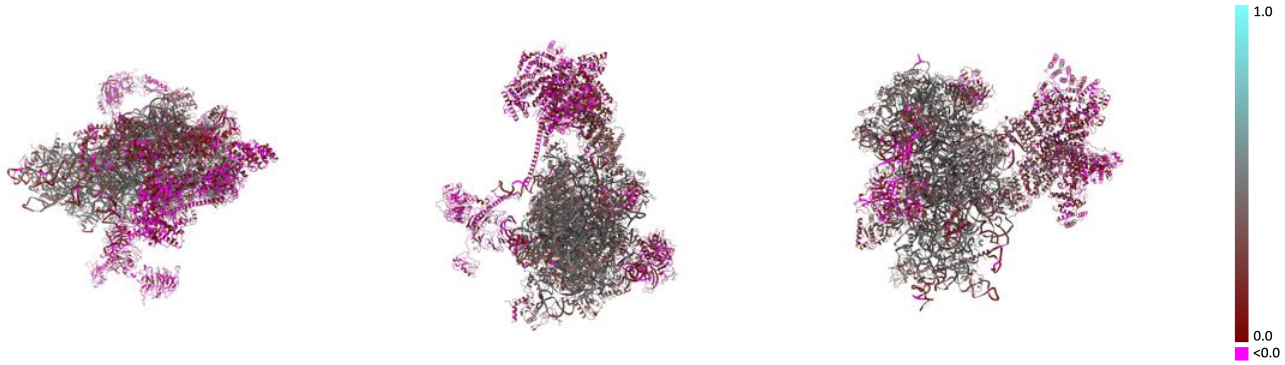
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 3.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

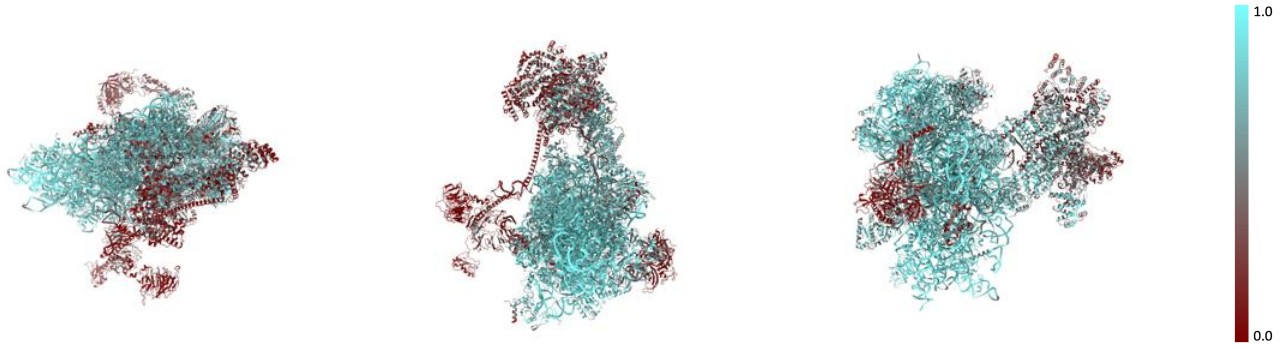
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

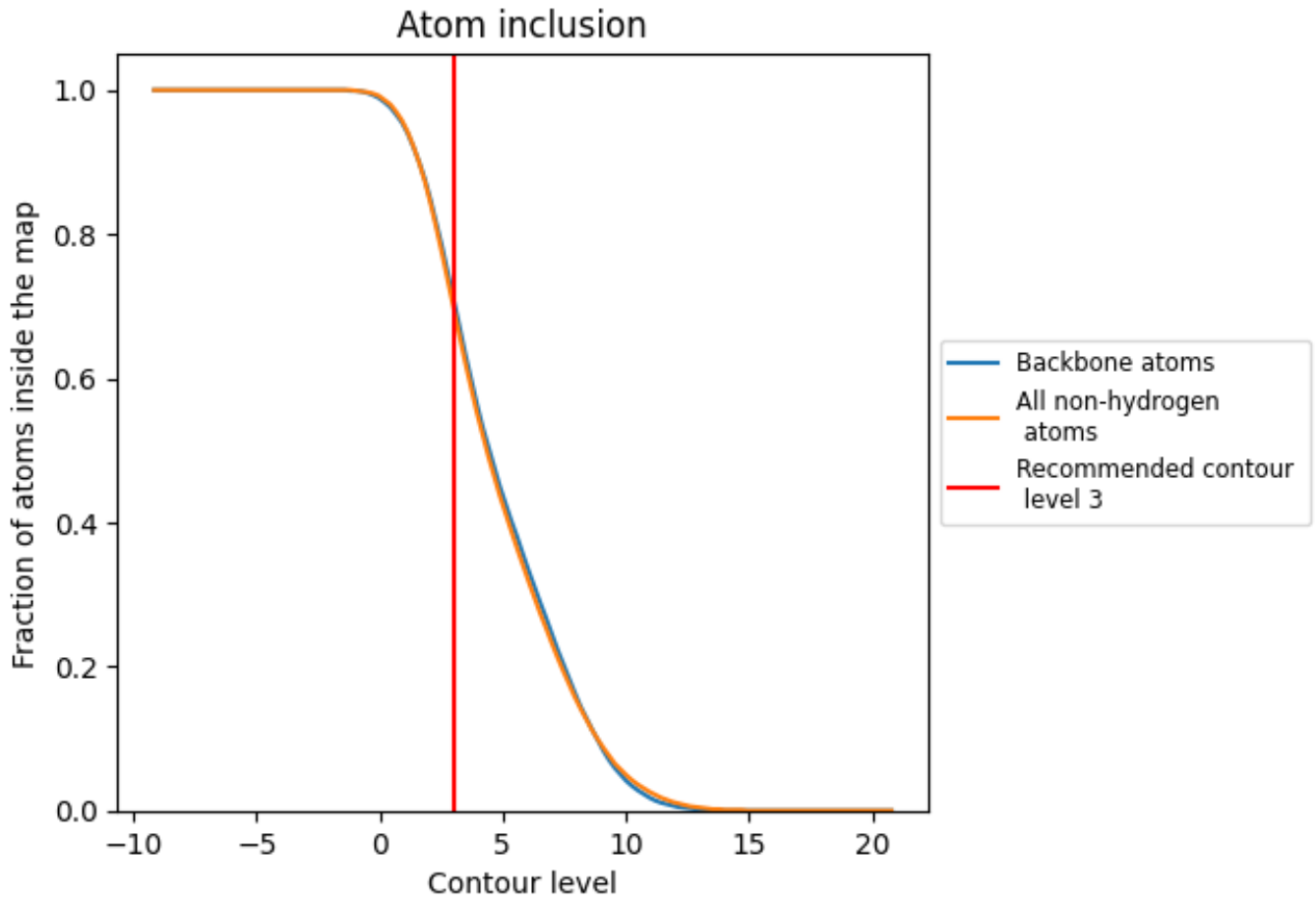
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (3).

9.4 Atom inclusion (i)



At the recommended contour level, 71% of all backbone atoms, 70% 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 (3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6980	0.3120
0	0.5780	0.2760
1	0.1450	0.0790
2	0.0030	0.0290
3	0.2580	0.0400
4	0.4140	0.0820
5	0.2490	0.0460
6	0.3860	0.0960
7	0.4730	0.1680
8	0.3820	0.0720
9	0.7270	0.3710
A	0.9310	0.3970
B	0.8420	0.4530
C	0.8670	0.4520
D	0.8370	0.4350
E	0.8560	0.4640
F	0.7600	0.4010
G	0.7550	0.3780
H	0.7950	0.4370
I	0.8260	0.4360
J	0.8550	0.4620
K	0.8080	0.4430
L	0.7980	0.4370
M	0.7350	0.3970
N	0.8300	0.4350
O	0.7990	0.4200
P	0.8050	0.4220
Q	0.8710	0.4590
R	0.8690	0.4210
S	0.8370	0.3790
T	0.8720	0.4300
V	0.8130	0.4360
Y	0.8710	0.4420
Z	0.7560	0.4070
a	0.8200	0.4240

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
b	0.8100	0.4010
c	0.8010	0.3880
d	0.8800	0.4330
e	0.7170	0.3790
f	0.8050	0.3940
h	0.7810	0.3970
i	0.9080	0.4610
k	0.6870	0.2650
m	0.6080	0.2420
n	0.7160	0.4150
o	0.3860	0.1630
q	0.7190	0.4110
r	0.5270	0.2080
t	0.0800	0.0790
u	0.5210	0.2010
v	0.4960	0.1120
w	0.7200	0.1600
x	0.5450	0.2260
y	0.5770	0.2550
z	0.4810	0.2130