Full wwPDB EM Validation Report ⓘ

Oct 21, 2025 – 01:34 PM JST

PDB ID	:	9K3V / pdb_00009k3v
EMDB ID	:	EMD-62030
Title	:	Human RNA Polymerase III de novo transcribing complex 4 (TC4)
Authors	:	Wang, Q.; Ren, Y.; Jin, Q.; Chen, X.; Xu, Y.
Deposited on	:	2024-10-20
Resolution	:	3.50 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

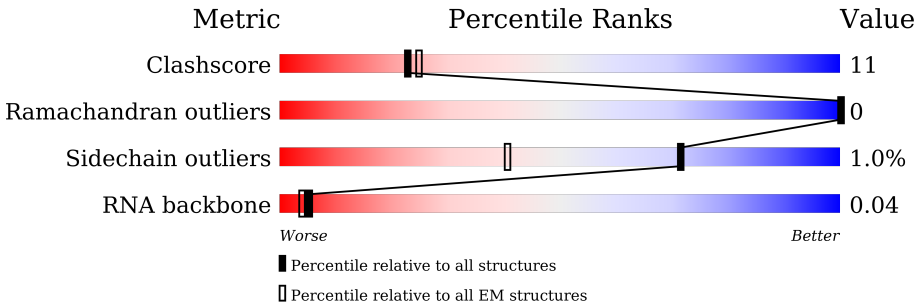
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive 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)	:	2.46

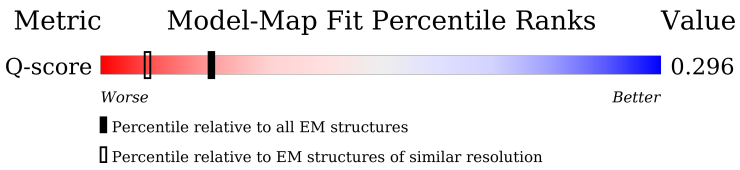
1 Overall quality at a glance

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

The reported resolution of this entry is 3.50 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.





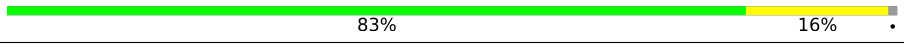
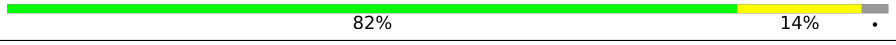
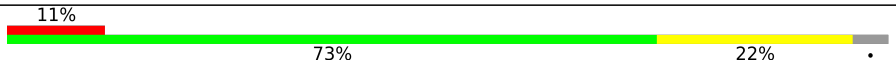
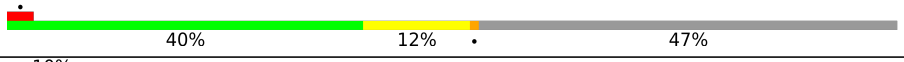
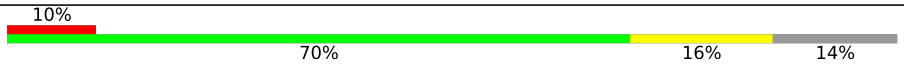
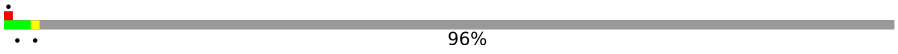
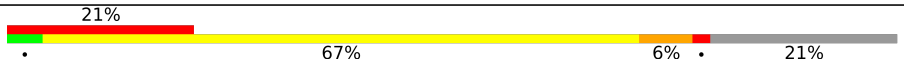
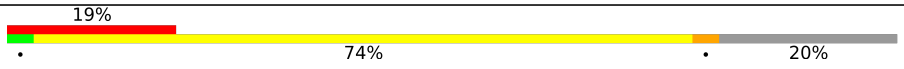
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	13950 (3.00 - 4.00)

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	1	368	39% 29% 10% • 61%
2	3	411	86% 80% 10% • 9%
3	4	1469	13% 14% • 83%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	A	1390	
5	B	1133	
6	C	346	
7	D	148	
8	E	210	
9	F	127	
10	G	204	
11	H	150	
12	I	108	
13	J	67	
14	K	133	
15	L	58	
16	M	708	
17	N	398	
18	O	534	
19	P	316	
20	Q	223	
21	U	339	
22	V	419	
23	W	2624	
24	X	96	
25	Y	96	
26	Z	3	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
29	SF4	P	401	-	-	X	-
31	GTP	Z	102	-	-	X	-

2 Entry composition

There are 31 unique types of molecules in this entry. The entry contains 56769 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 snRNA-activating protein complex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1	145	1226	799	211	208	8	0	0

- Molecule 2 is a protein called snRNA-activating protein complex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	3	374	3038	1925	521	571	21	0	0

- Molecule 3 is a protein called snRNA-activating protein complex subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	4	247	2066	1295	378	388	5	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase III subunit RPC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	A	1378	10814	6850	1886	2005	73	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerase III subunit RPC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	B	1097	8680	5499	1516	1597	68	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerases I and III subunit RPAC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	C	343	2736	1723	488	514	11	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase III subunit RPC9.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	D	122	Total	C	N	O	S	0	0
			985	614	172	196	3		

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	E	209	Total	C	N	O	S	0	0
			1715	1083	300	324	8		

- Molecule 9 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	F	76	Total	C	N	O	S	0	0
			610	392	103	110	5		

- Molecule 10 is a protein called DNA-directed RNA polymerase III subunit RPC8.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	G	166	Total	C	N	O	S	0	0
			1337	876	211	245	5		

- Molecule 11 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

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

- Molecule 12 is a protein called DNA-directed RNA polymerase III subunit RPC10.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	I	54	Total	C	N	O	S	0	0
			426	267	79	74	6		

- Molecule 13 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	J	65	Total	C	N	O	S	0	0
			512	331	87	88	6		

- Molecule 14 is a protein called DNA-directed RNA polymerases I and III subunit RPAC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	103	Total	C	N	O	S	0	0
			822	513	145	157	7		

- Molecule 15 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	46	Total	C	N	O	S	0	0
			388	241	75	66	6		

- Molecule 16 is a protein called DNA-directed RNA polymerase III subunit RPC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	422	Total	C	N	O	S	0	0
			3382	2138	588	636	20		

- Molecule 17 is a protein called DNA-directed RNA polymerase III subunit RPC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	N	146	Total	C	N	O	S	0	0
			1128	710	191	221	6		

- Molecule 18 is a protein called DNA-directed RNA polymerase III subunit RPC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	O	512	Total	C	N	O	S	0	0
			4075	2565	712	774	24		

- Molecule 19 is a protein called DNA-directed RNA polymerase III subunit RPC6.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	P	303	Total	C	N	O	S	0	0
			2403	1516	411	460	16		

- Molecule 20 is a protein called DNA-directed RNA polymerase III subunit RPC7.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	Q	87	Total	C	N	O	S	0	0
			754	488	126	134	6		

- Molecule 21 is a protein called TATA-box-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	178	Total	C	N	O	S	1	0
			1411	915	246	243	7		

- Molecule 22 is a protein called Transcription factor IIIB 50 kDa subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	361	Total	C	N	O	S	1	0
			2853	1792	507	531	23		

- Molecule 23 is a protein called Transcription factor TFIIIB component B" homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	111	Total	C	N	O	S	0	0
			943	606	163	170	4		

- Molecule 24 is a DNA chain called DNA (96-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	76	Total	C	N	O	P	0	0
			1558	747	273	462	76		

- Molecule 25 is a DNA chain called DNA (96-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Y	77	Total	C	N	O	P	0	0
			1580	755	292	456	77		

- Molecule 26 is a RNA chain called RNA (5'-R(P*UP*GP*C)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Z	3	Total	C	N	O	P	0	0
			63	28	10	22	3		

- Molecule 27 is ZINC ION (CCD ID: ZN) (formula: Zn).

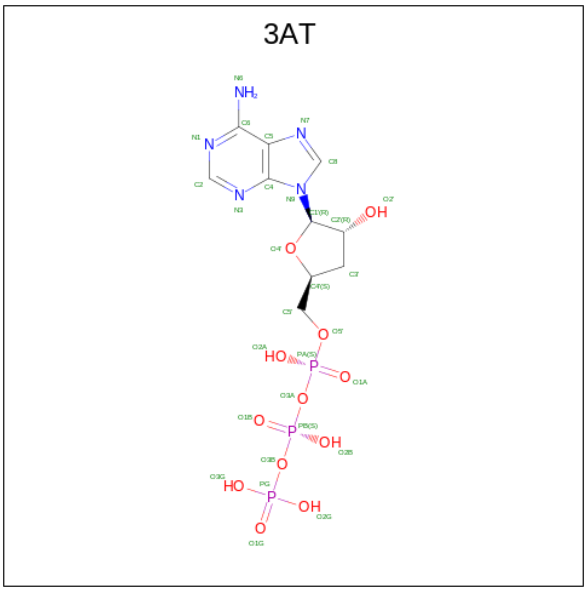
Mol	Chain	Residues	Atoms		AltConf
27	A	2	Total	Zn	0
			2	2	
27	B	1	Total	Zn	0
			1	1	
27	I	1	Total	Zn	0
			1	1	

Continued on next page...

Continued from previous page...

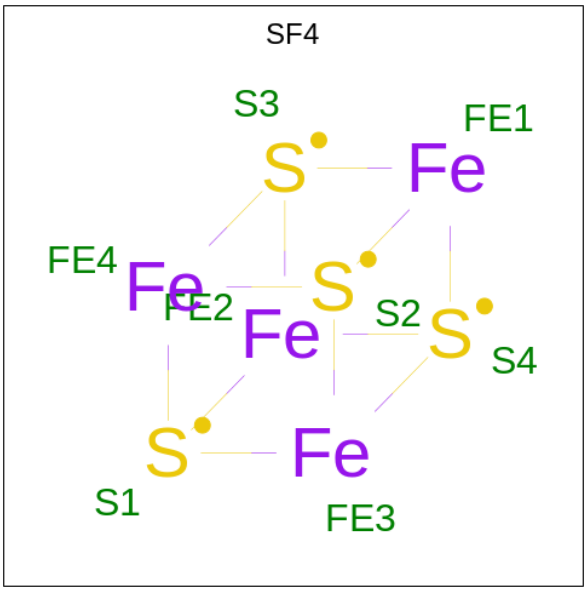
Mol	Chain	Residues	Atoms	AltConf
27	J	1	Total Zn 1 1	0
27	L	1	Total Zn 1 1	0
27	V	1	Total Zn 1 1	0

- Molecule 28 is 3'-DEOXYADENOSINE-5'-TRIPHOSPHATE (CCD ID: 3AT) (formula: $C_{10}H_{16}N_5O_{12}P_3$).



Mol	Chain	Residues	Atoms	AltConf
28	B	1	Total C N O P 30 10 5 12 3	0

- Molecule 29 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4).

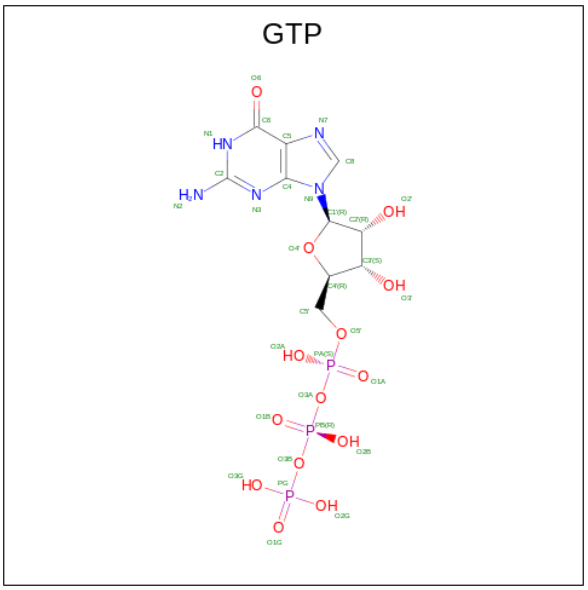


Mol	Chain	Residues	Atoms			AltConf
29	P	1	Total	Fe	S	0
			8	4	4	

- Molecule 30 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
30	Z	1	Total	Mg	0
			1	1	

- Molecule 31 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



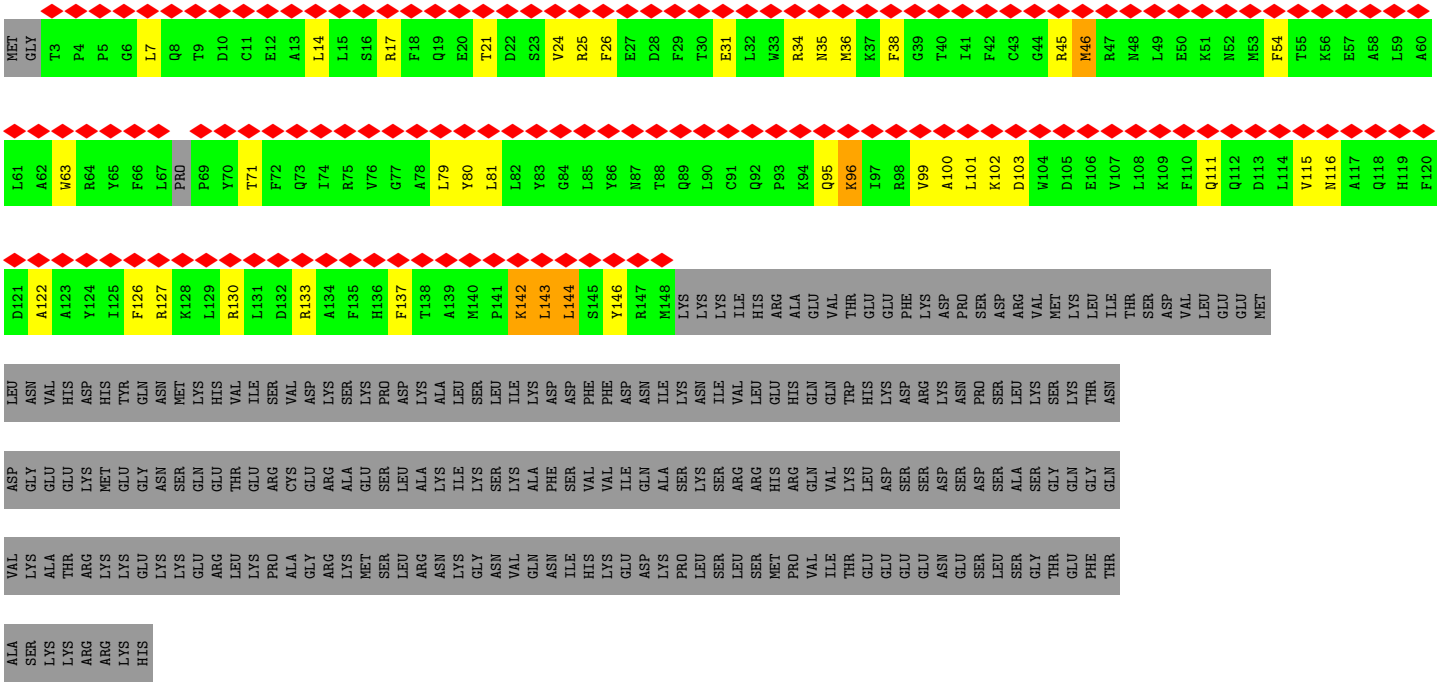
Mol	Chain	Residues	Atoms					AltConf
31	Z	1	Total	C	N	O	P	0
			32	10	5	14	3	

3 Residue-property plots (i)

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

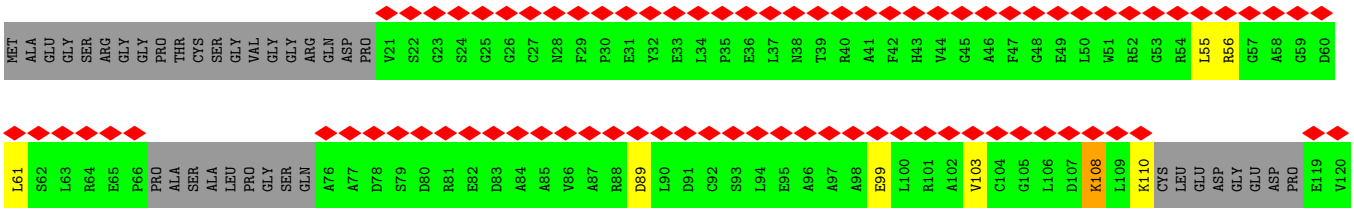
• Molecule 1: snRNA-activating protein complex subunit 1

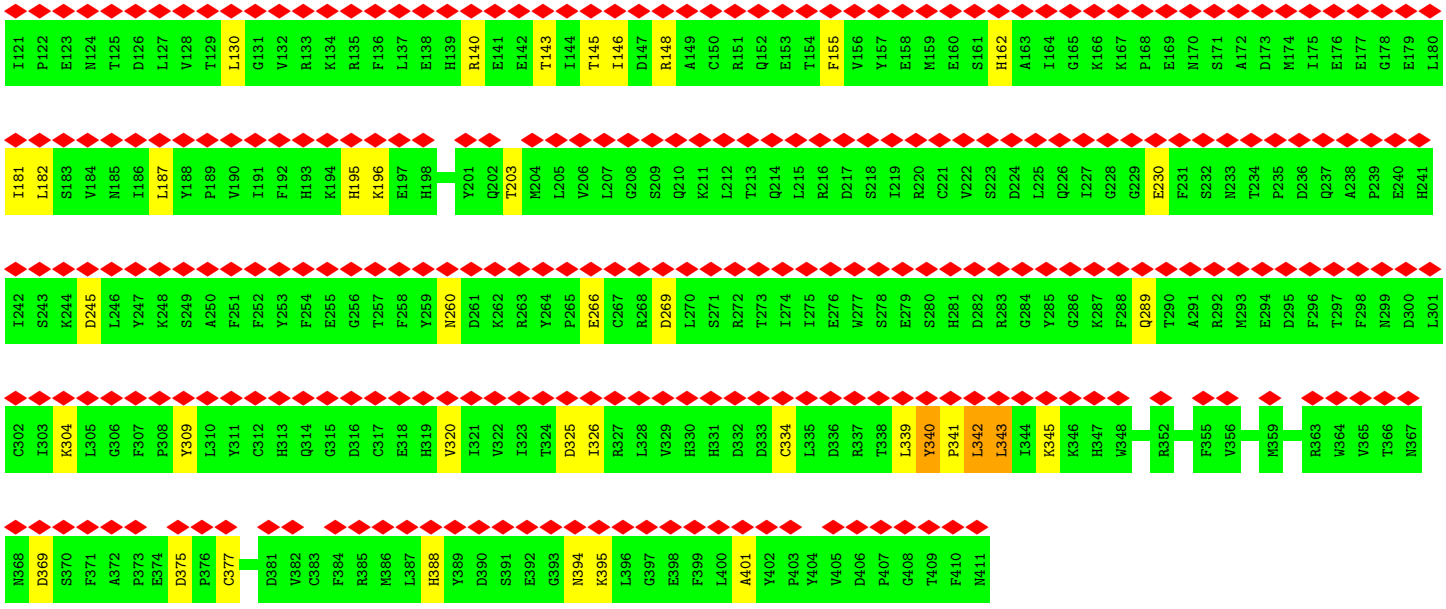
Chain 1:



• Molecule 2: snRNA-activating protein complex subunit 3

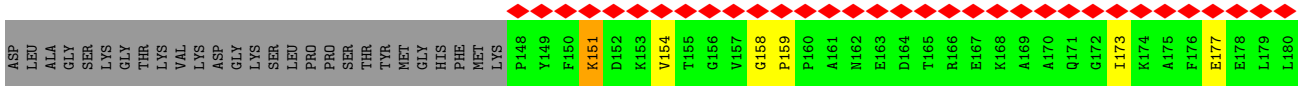
Chain 3:

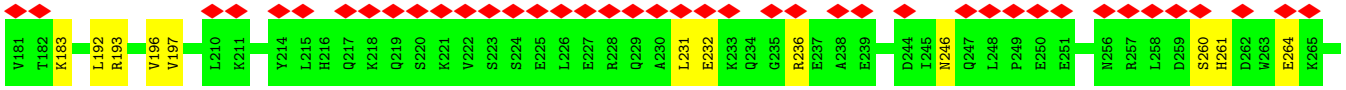


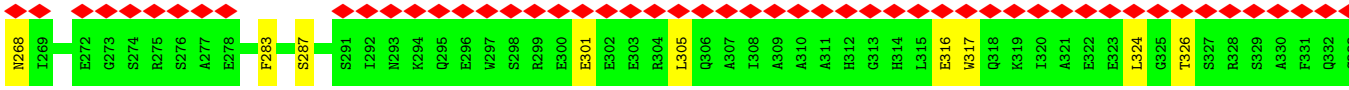


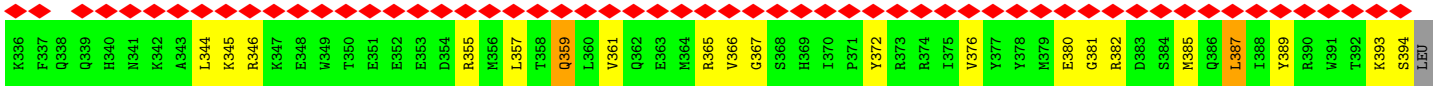
• Molecule 3: snRNA-activating protein complex subunit 4

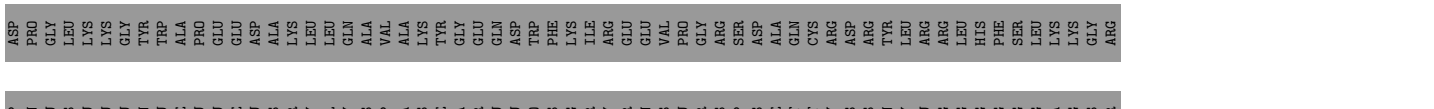
Chain 4:

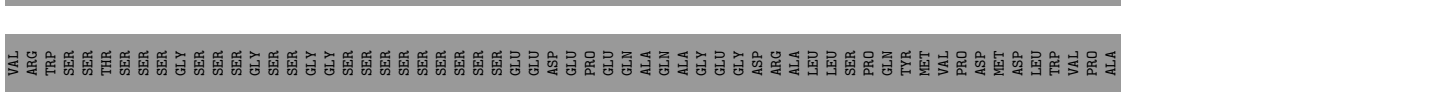


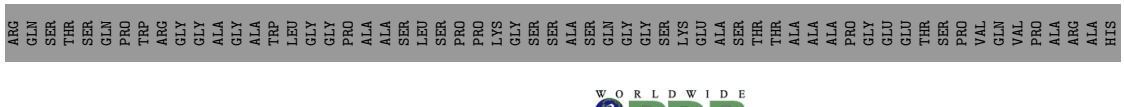


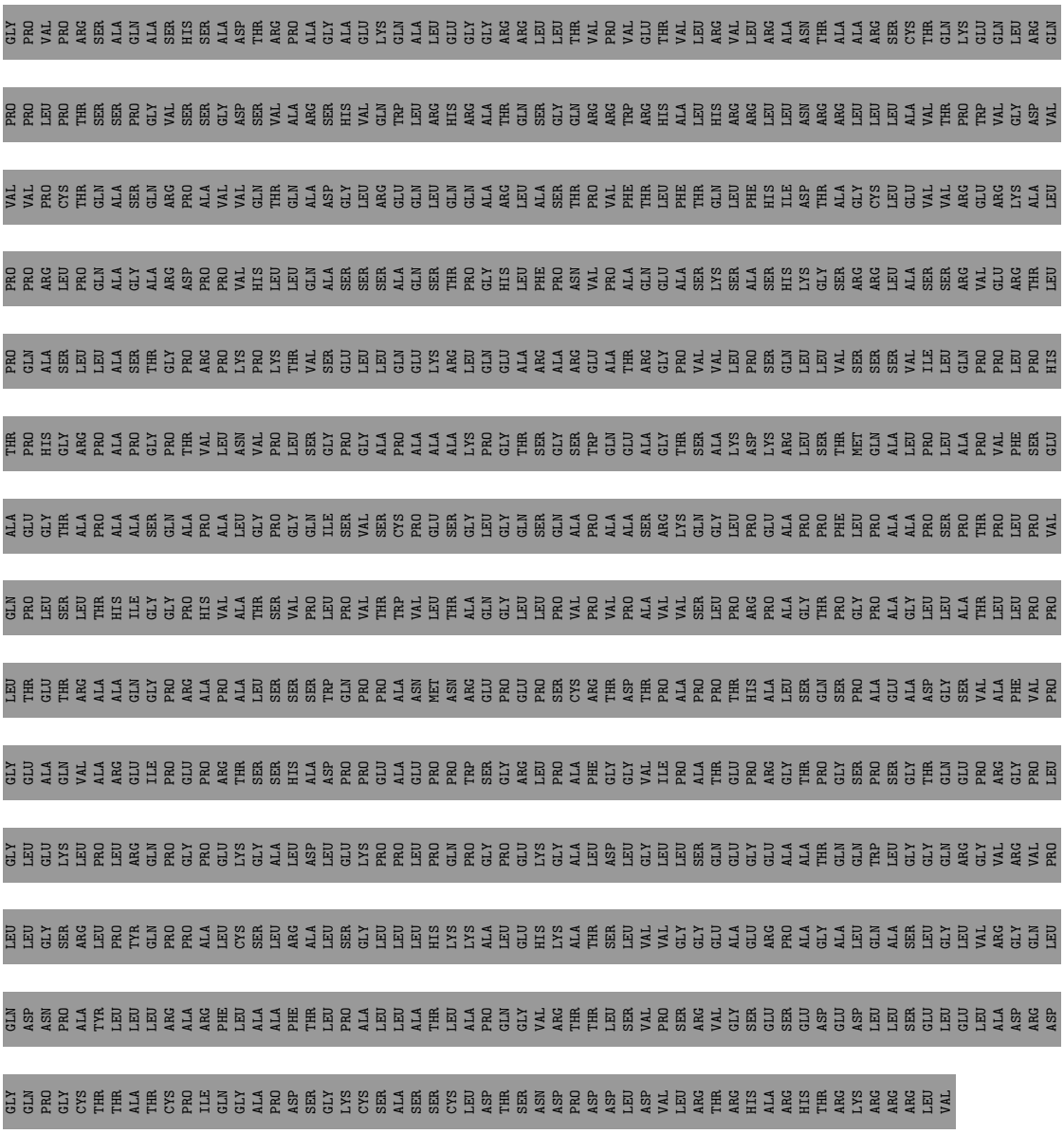






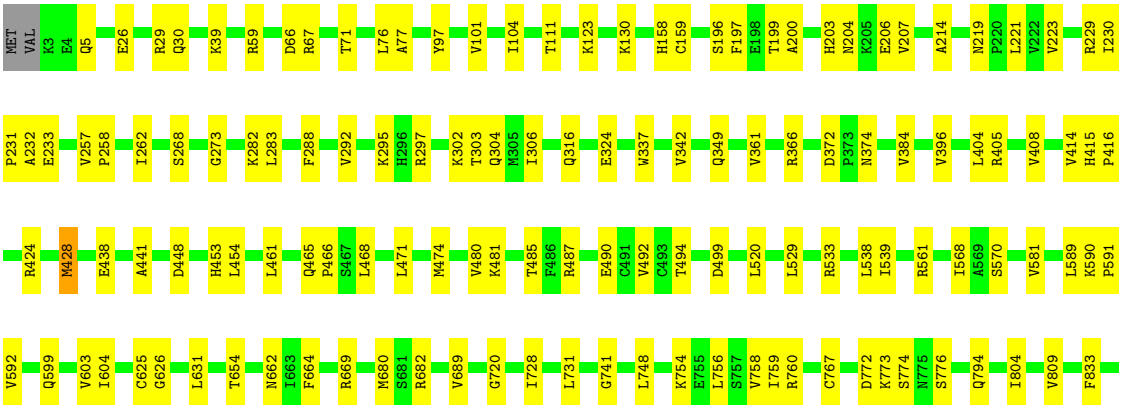


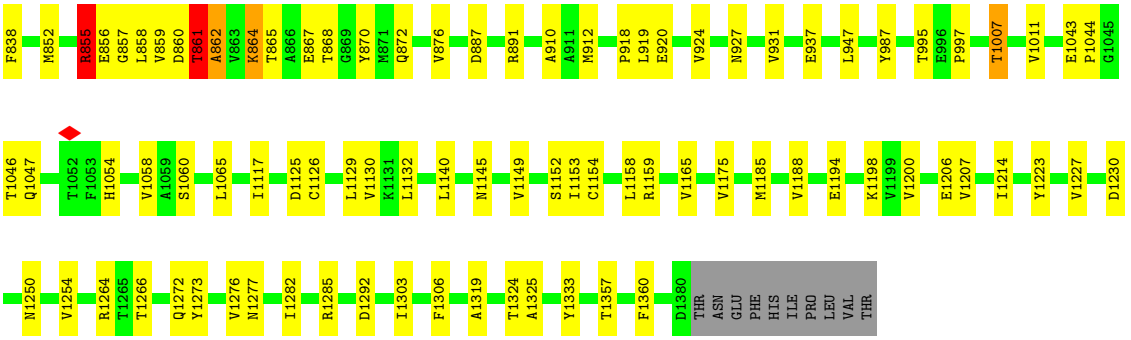




• Molecule 4: DNA-directed RNA polymerase III subunit RPC1

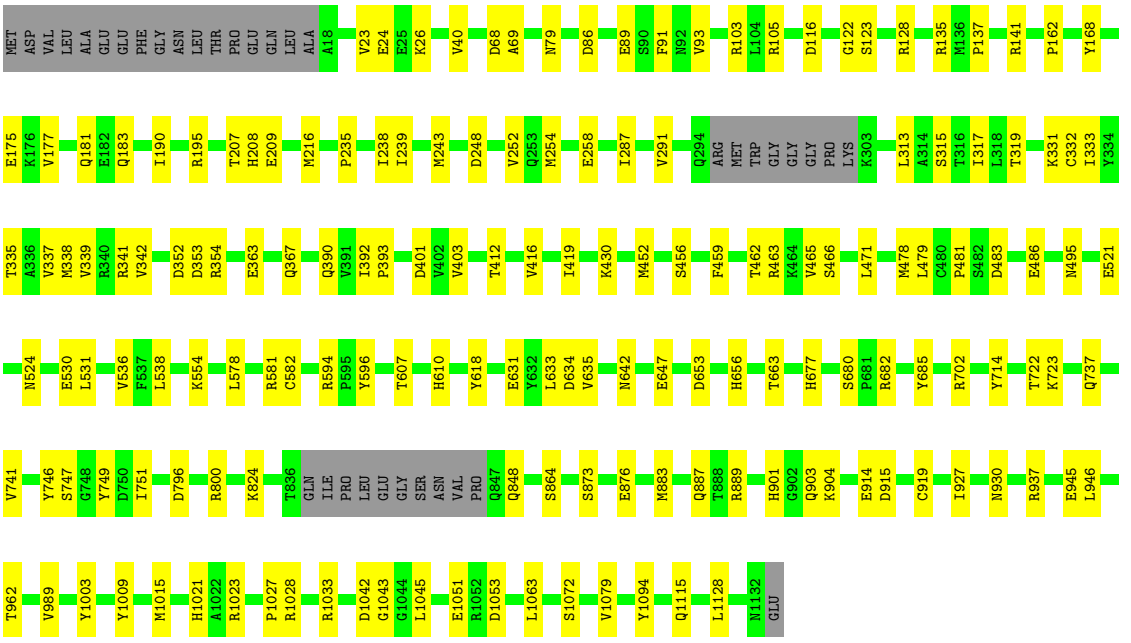
Chain A:





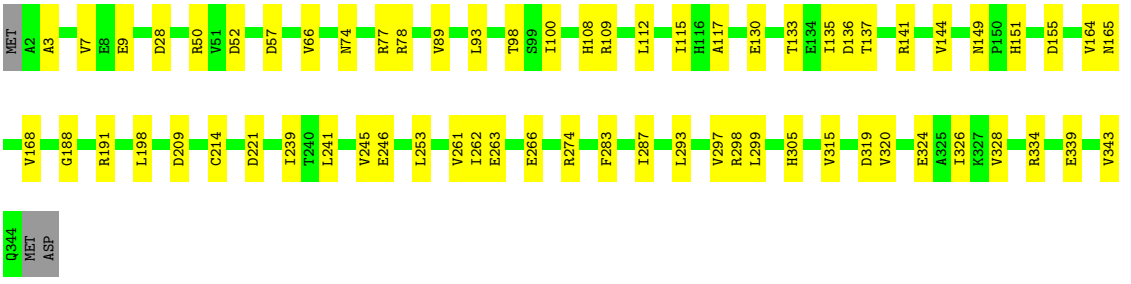
• Molecule 5: DNA-directed RNA polymerase III subunit RPC2

Chain B:



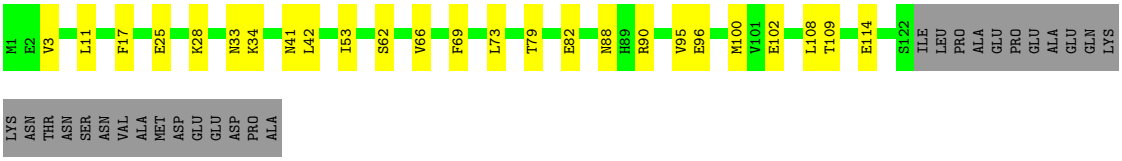
• Molecule 6: DNA-directed RNA polymerases I and III subunit RPAC1

Chain C:

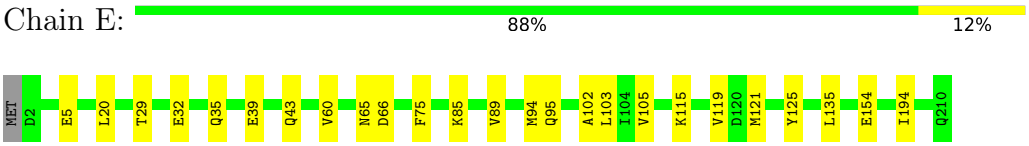


• Molecule 7: DNA-directed RNA polymerase III subunit RPC9

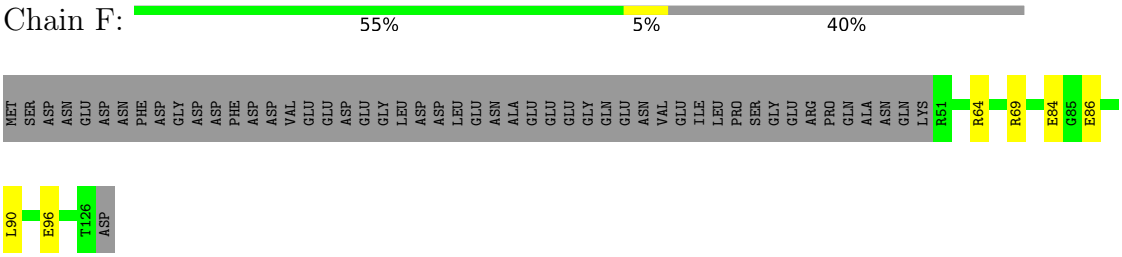
Chain D:



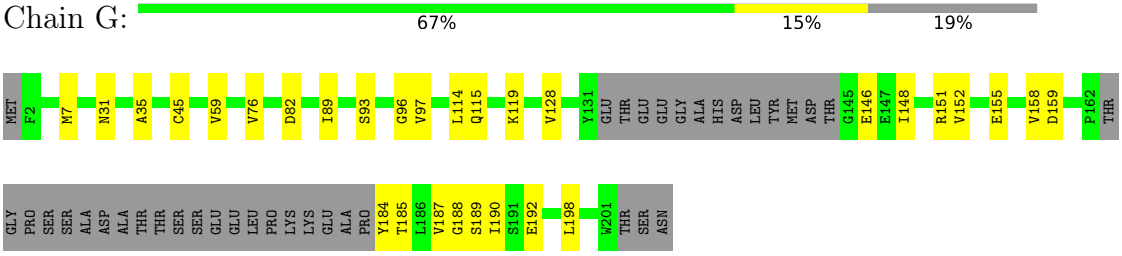
• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC1



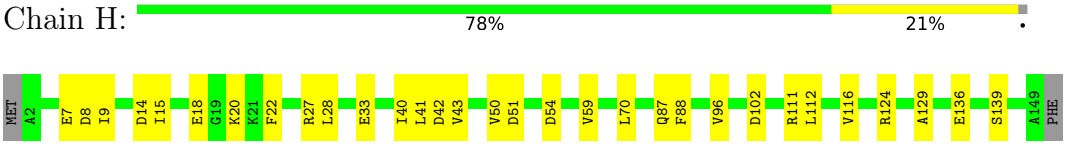
• Molecule 9: DNA-directed RNA polymerases I, II, and III subunit RPABC2



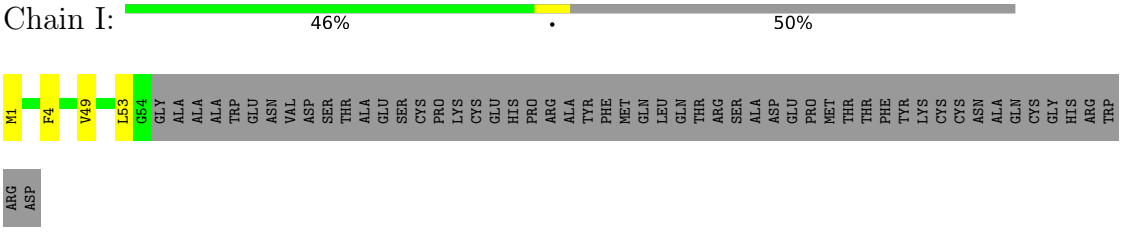
• Molecule 10: DNA-directed RNA polymerase III subunit RPC8



• Molecule 11: DNA-directed RNA polymerases I, II, and III subunit RPABC3

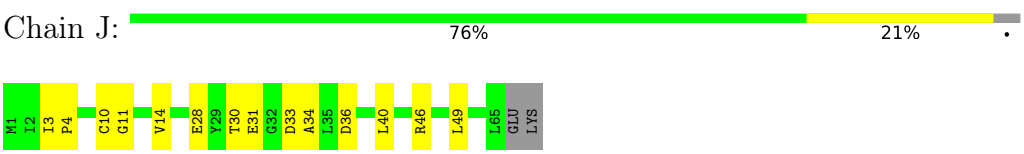


• Molecule 12: DNA-directed RNA polymerase III subunit RPC10



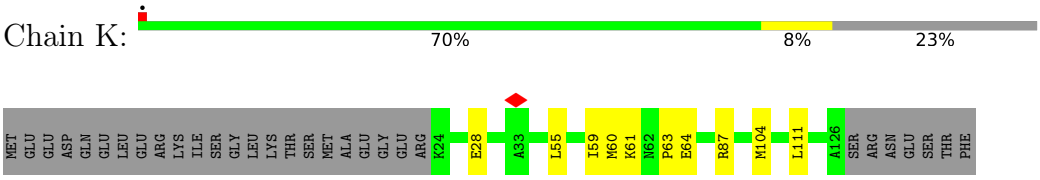
• Molecule 13: DNA-directed RNA polymerases I, II, and III subunit RPABC5

Chain J:



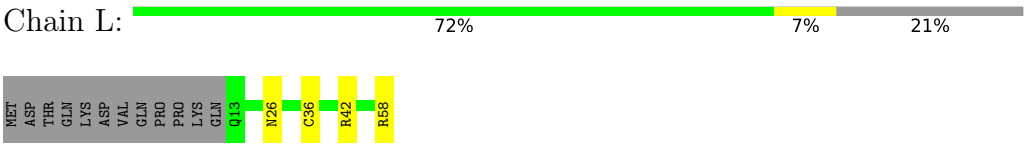
• Molecule 14: DNA-directed RNA polymerases I and III subunit RPAC2

Chain K:



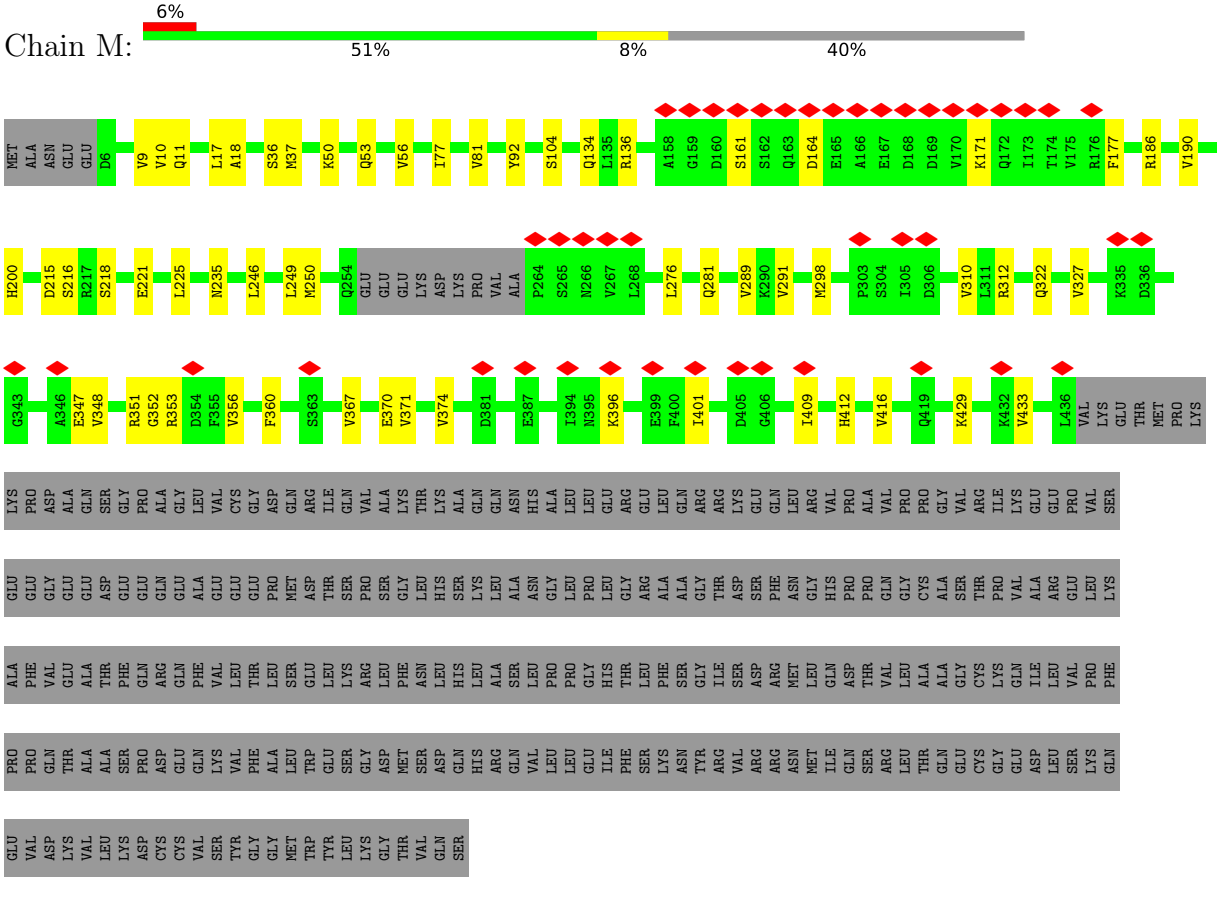
• Molecule 15: DNA-directed RNA polymerases I, II, and III subunit RPABC4

Chain L:



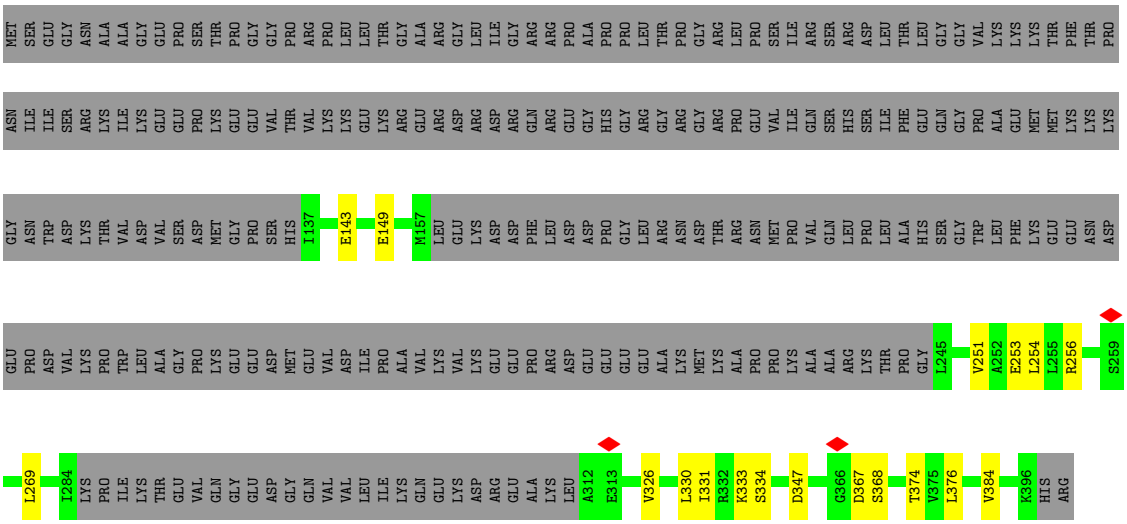
• Molecule 16: DNA-directed RNA polymerase III subunit RPC5

Chain M:

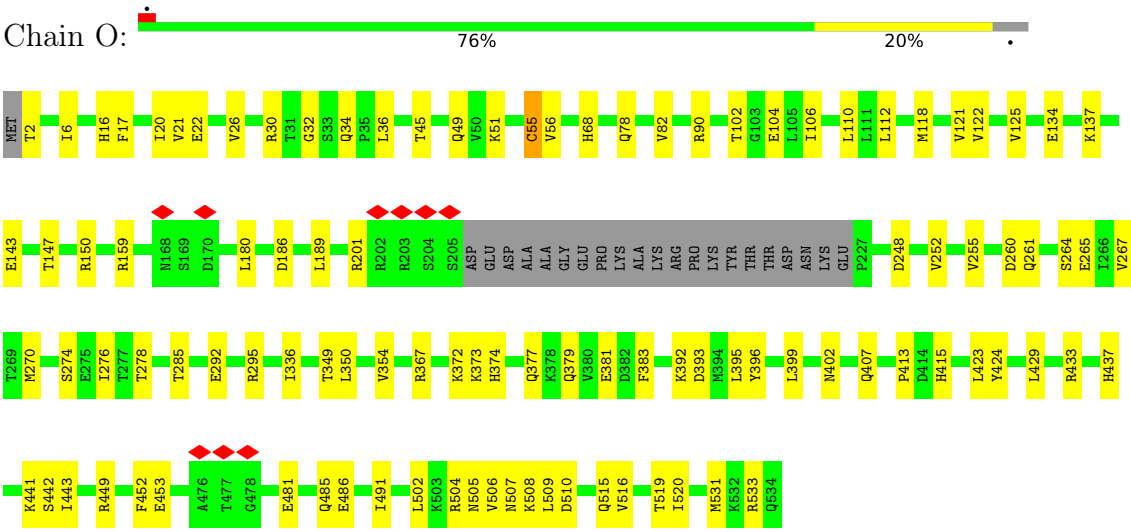


• Molecule 17: DNA-directed RNA polymerase III subunit RPC4

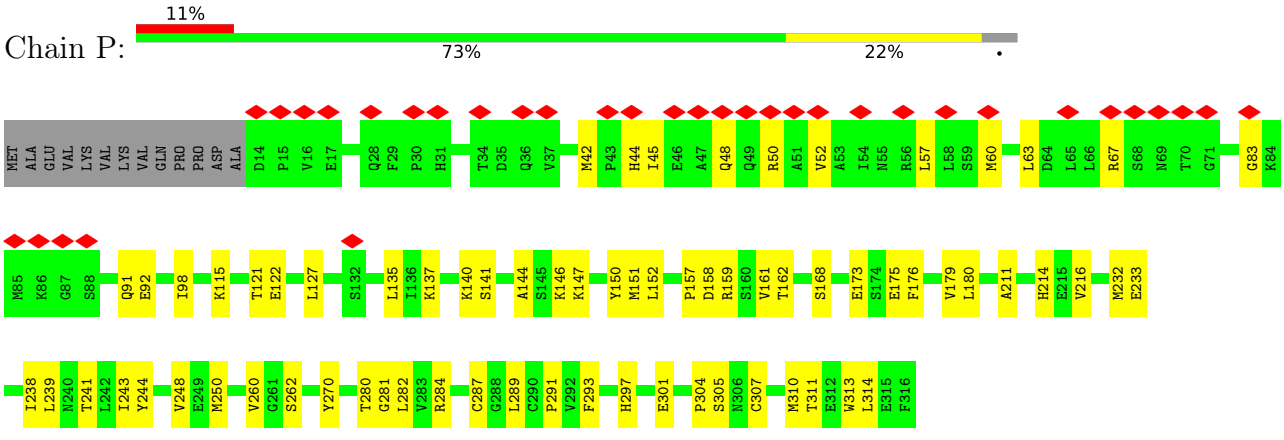
Chain N:



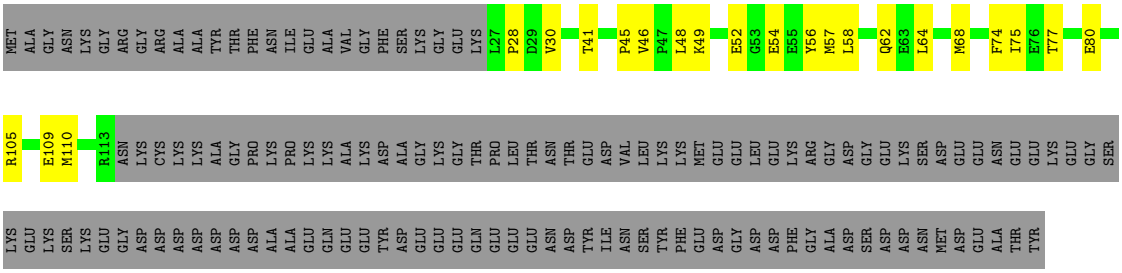
• Molecule 18: DNA-directed RNA polymerase III subunit RPC3



• Molecule 19: DNA-directed RNA polymerase III subunit RPC6

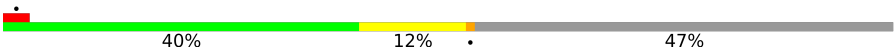


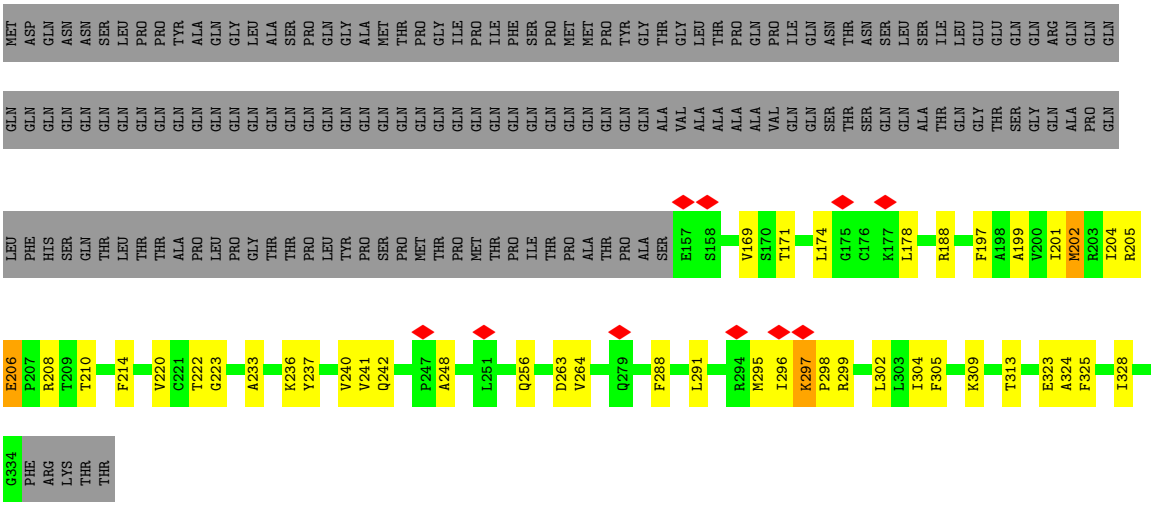
• Molecule 20: DNA-directed RNA polymerase III subunit RPC7



• Molecule 21: TATA-box-binding protein

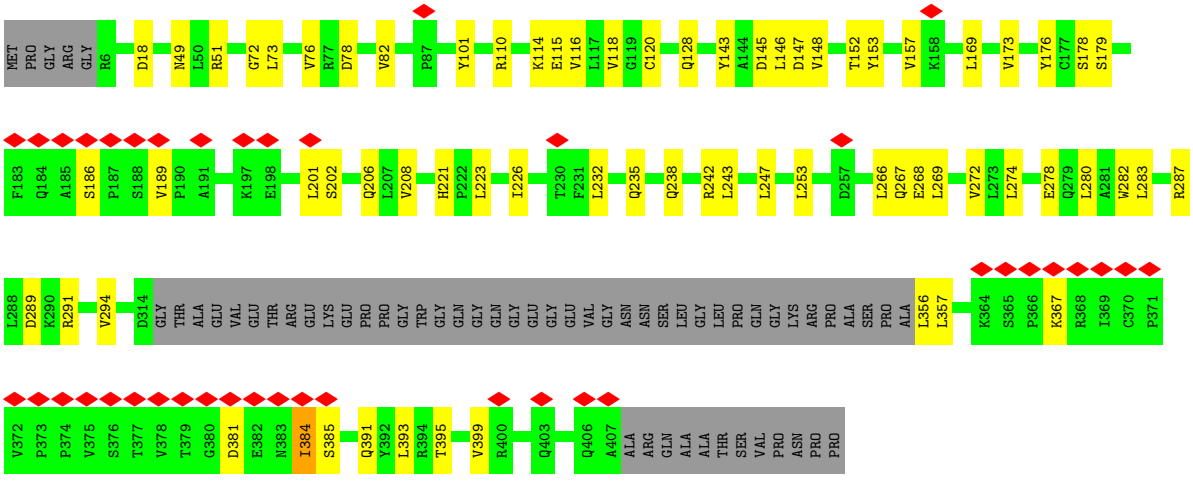
Chain U:





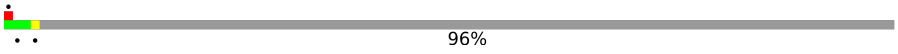
• Molecule 22: Transcription factor IIIB 50 kDa subunit

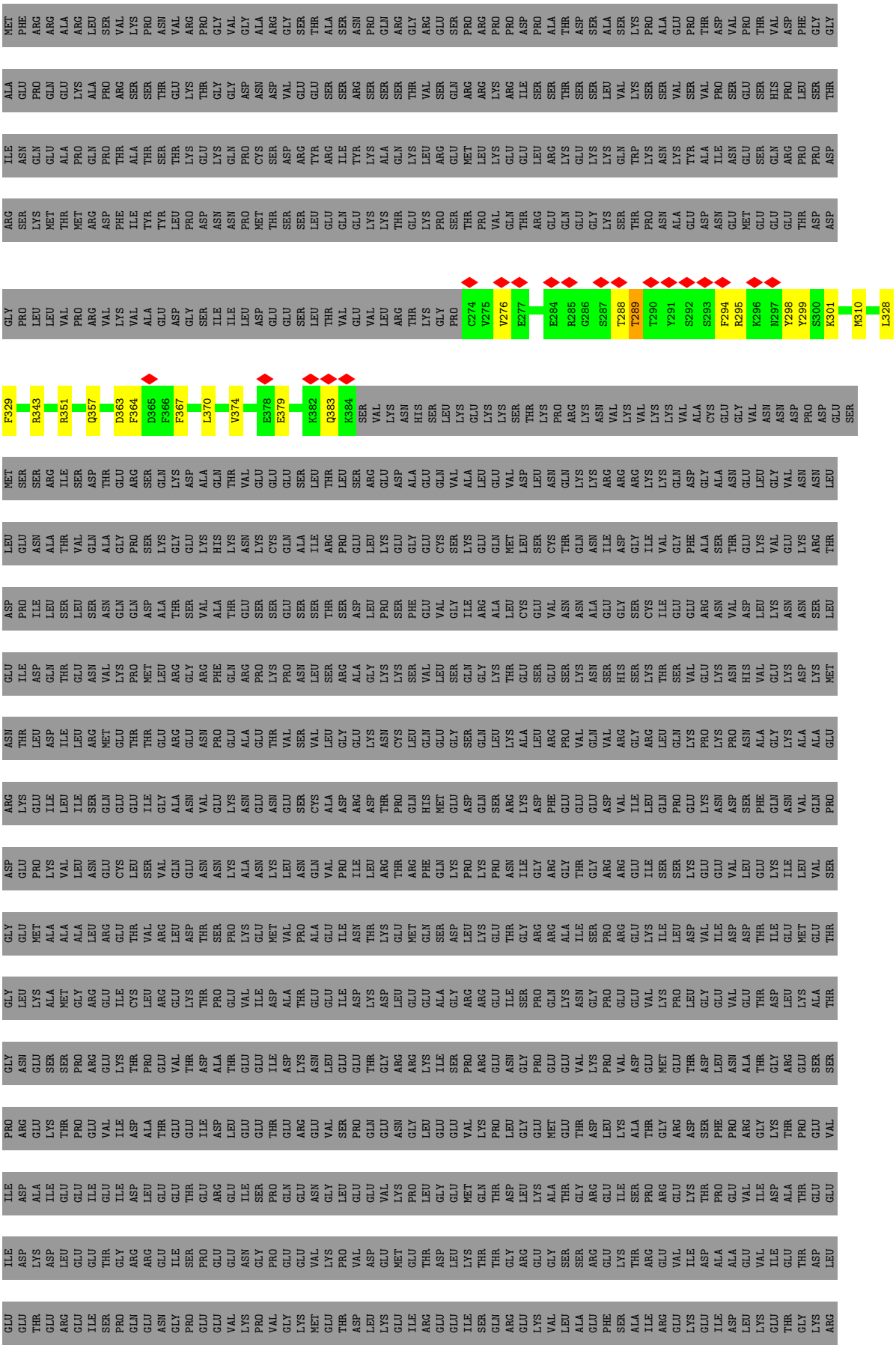
Chain V:



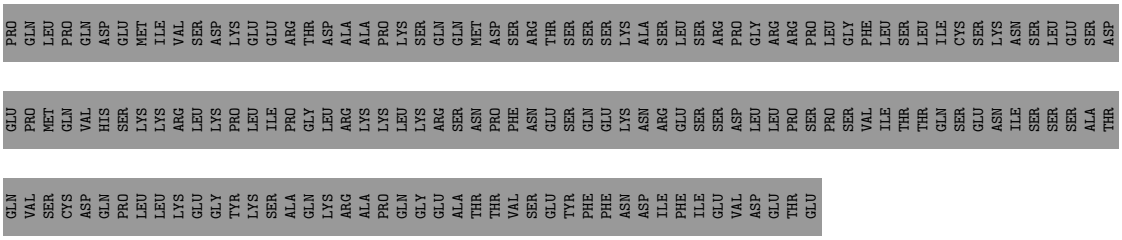
• Molecule 23: Transcription factor TFIIIB component B" homolog

Chain W:

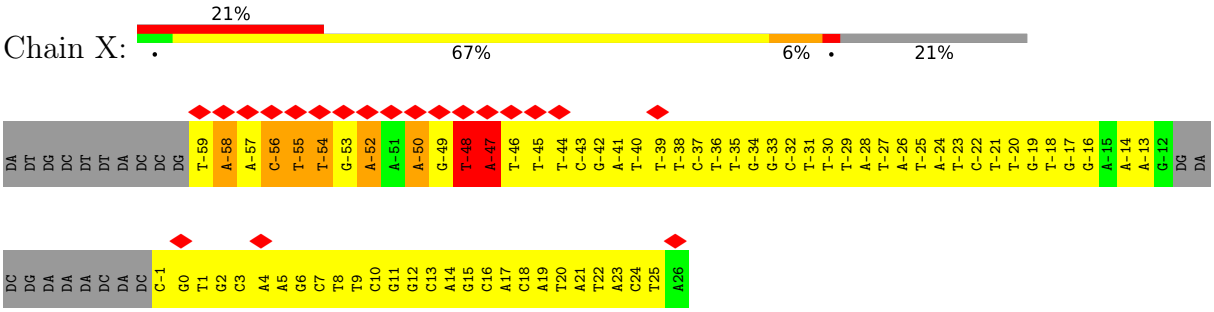



C274
V275
V276
E277
E284
R285
G286
S287
T288
T289
T290
Y291
S292
S293
F294
R295
K296
N297
Y298
Y299
S300
K301
M310
L328
F329
R343
R351
Q357
D363
F364
D365
F366
F367
L370
V374
E378
E379
K382
Q383
K384

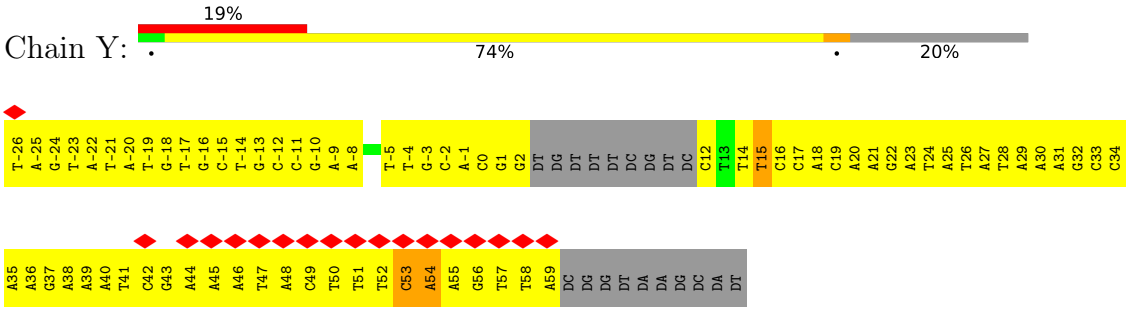
ASP ILE PRO ILE MET GLU LYS VAL SER GLY LYS MET ALA VAL VAL GLU GLU MET GLU ALA ASP LEU LYS GLU THR GLY LYS GLU ASN PHE ARG GLU ARG GLY SER GLU GLU ILE CYS VAL THR GLU GLU LYS VAL ALA GLU LEU LYS GLN THR GLY LYS THR ASP ILE SER PRO ARG GLU
ASN GLU LEU GLU GLU THR SER THR SER ARG GLN THR ASP THR HIS LEU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



• Molecule 24: DNA (96-MER)



• Molecule 25: DNA (96-MER)



• Molecule 26: RNA (5'-R(P*UP*GP*C)-3')

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	235000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	7.505	Depositor
Minimum map value	-4.247	Depositor
Average map value	0.005	Depositor
Map value standard deviation	0.114	Depositor
Recommended contour level	0.143	Depositor
Map size (Å)	429.07724, 429.07724, 429.07724	wwPDB
Map dimensions	322, 322, 322	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.332538, 1.332538, 1.332538	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: 3AT, ZN, MG, SF4, GTP

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	1	0.21	0/1257	0.48	1/1692 (0.1%)
2	3	0.14	0/3113	0.33	0/4206
3	4	0.12	0/2107	0.27	0/2828
4	A	0.21	2/11008 (0.0%)	0.28	2/14842 (0.0%)
5	B	0.11	0/8845	0.24	0/11930
6	C	0.11	0/2790	0.24	0/3782
7	D	0.12	0/997	0.24	0/1343
8	E	0.12	0/1745	0.23	0/2358
9	F	0.13	0/620	0.24	0/839
10	G	0.12	0/1374	0.26	0/1868
11	H	0.12	0/1207	0.24	0/1628
12	I	0.13	0/434	0.22	0/584
13	J	0.13	0/521	0.25	0/703
14	K	0.13	0/837	0.25	0/1129
15	L	0.15	0/394	0.26	0/524
16	M	0.11	0/3455	0.23	0/4673
17	N	0.11	0/1137	0.24	0/1530
18	O	0.11	0/4141	0.24	0/5592
19	P	0.11	0/2446	0.22	0/3301
20	Q	0.13	0/777	0.23	0/1050
21	U	0.22	0/1439	0.52	1/1938 (0.1%)
22	V	0.12	0/2904	0.25	0/3941
23	W	0.14	0/967	0.27	0/1293
24	X	0.38	2/1744 (0.1%)	0.89	12/2688 (0.4%)
25	Y	0.30	2/1773 (0.1%)	0.57	5/2731 (0.2%)
26	Z	0.57	0/69	1.00	1/105 (1.0%)
All	All	0.17	6/58101 (0.0%)	0.33	22/79098 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a

sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
4	A	0	1
5	B	0	1
24	X	0	2
All	All	0	4

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	X	-56	DC	O3'-P	9.26	1.75	1.61
25	Y	15	DT	C4'-O4'	7.87	1.61	1.45
4	A	861	THR	CA-C	-6.88	1.44	1.52
4	A	861	THR	N-CA	-6.72	1.38	1.46
24	X	-58	DA	O3'-P	-6.17	1.51	1.61
25	Y	53	DC	O3'-P	-5.45	1.52	1.61

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	Y	54	DA	O3'-P-O5'	-17.63	77.56	104.00
24	X	-54	DT	O3'-P-O5'	-16.51	79.23	104.00
24	X	-55	DT	O3'-P-O5'	16.07	128.11	104.00
24	X	-47	DA	C5'-C4'-O4'	16.04	133.45	109.40
24	X	-50	DA	C2'-C3'-O3'	-13.84	90.74	111.50
24	X	-55	DT	P-O3'-C3'	-12.72	101.12	120.20
21	U	206	GLU	N-CA-C	-11.46	95.27	109.83
25	Y	15	DT	C5'-C4'-O4'	9.66	123.89	109.40
25	Y	53	DC	O3'-P-O5'	9.44	118.16	104.00
24	X	-48	DT	C4'-C3'-O3'	8.96	123.45	110.00
24	X	-54	DT	C5'-C4'-O4'	-8.26	97.00	109.40
24	X	-52	DA	P-O3'-C3'	8.21	132.51	120.20
25	Y	54	DA	OP1-P-O3'	7.80	131.41	108.00
24	X	-48	DT	N1-C1'-C2'	6.76	123.64	113.50
24	X	-55	DT	OP1-P-O3'	-6.67	87.98	108.00
4	A	862	ALA	N-CA-C	6.53	118.47	111.36
24	X	-54	DT	OP2-P-O3'	5.89	125.66	108.00
4	A	864	LYS	N-CA-C	-5.88	104.95	111.36
1	1	71	THR	N-CA-C	5.79	123.12	110.80
24	X	-50	DA	O3'-P-O5'	-5.56	95.66	104.00
26	Z	2	U	C2'-C3'-O3'	-5.21	105.89	113.70
25	Y	53	DC	P-O3'-C3'	-5.17	112.44	120.20

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	A	855	ARG	Sidechain
5	B	682	ARG	Sidechain
24	X	-47	DA	Sidechain
24	X	-48	DT	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	1226	0	1224	24	0
2	3	3038	0	2911	62	0
3	4	2066	0	2049	33	0
4	A	10814	0	11058	238	0
5	B	8680	0	8805	122	0
6	C	2736	0	2712	44	0
7	D	985	0	1006	16	0
8	E	1715	0	1733	18	0
9	F	610	0	642	6	0
10	G	1337	0	1306	22	0
11	H	1186	0	1147	21	0
12	I	426	0	429	6	0
13	J	512	0	525	8	0
14	K	822	0	810	8	0
15	L	388	0	393	3	0
16	M	3382	0	3376	58	0
17	N	1128	0	1181	16	0
18	O	4075	0	4149	162	0
19	P	2403	0	2408	95	0
20	Q	754	0	759	38	0
21	U	1411	0	1499	42	0
22	V	2853	0	2890	47	0
23	W	943	0	924	26	0
24	X	1558	0	865	213	0
25	Y	1580	0	870	192	0
26	Z	63	0	32	28	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
27	A	2	0	0	0	0
27	B	1	0	0	0	0
27	I	1	0	0	0	0
27	J	1	0	0	0	0
27	L	1	0	0	0	0
27	V	1	0	0	0	0
28	B	30	0	12	4	0
29	P	8	0	0	2	0
30	Z	1	0	0	0	0
31	Z	32	0	11	21	0
All	All	56769	0	55726	1230	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 11.

All (1230) 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)
24:X:-49:DG:H22	25:Y:49:DC:N4	1.15	1.41
24:X:-49:DG:N2	25:Y:49:DC:H42	1.09	1.41
2:3:181:ILE:HD11	2:3:340:TYR:OH	1.12	1.29
26:Z:2:U:C5'	31:Z:102:GTP:O2'	1.81	1.27
2:3:181:ILE:CD1	2:3:340:TYR:OH	1.84	1.24
16:M:177:PHE:CE2	19:P:98:ILE:HD12	1.70	1.24
4:A:196:SER:O	18:O:373:LYS:HB2	1.37	1.21
26:Z:2:U:H5'	31:Z:102:GTP:O2'	1.05	1.20
4:A:197:PHE:CE2	18:O:374:HIS:CD2	2.32	1.17
16:M:177:PHE:CZ	19:P:98:ILE:HD12	1.80	1.15
4:A:203:HIS:CE1	18:O:383:PHE:CZ	2.34	1.15
25:Y:36:DA:H2"	25:Y:37:DG:H5"	1.33	1.09
4:A:231:PRO:HA	18:O:2:THR:OG1	1.51	1.09
4:A:233:GLU:HA	18:O:30:ARG:O	1.51	1.07
4:A:197:PHE:CZ	18:O:374:HIS:NE2	2.23	1.06
4:A:303:THR:OG1	18:O:377:GLN:NE2	1.90	1.05
25:Y:-1:DA:N1	26:Z:2:U:O4	1.89	1.04
24:X:-14:DA:H2"	24:X:-13:DA:H5'	1.41	1.03
4:A:214:ALA:HB1	18:O:407:GLN:HE21	1.18	1.03
24:X:4:DA:H5'	24:X:5:DA:H5"	1.39	1.03
2:3:195:HIS:NE2	24:X:-48:DT:O4	1.93	1.02
26:Z:2:U:C5'	31:Z:102:GTP:HO2'	1.62	1.01
25:Y:23:DA:H2"	25:Y:24:DT:H5"	1.42	1.00

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:203:HIS:NE2	18:O:383:PHE:CZ	2.30	0.99
25:Y:25:DA:H2"	25:Y:26:DT:H5'	1.43	0.99
16:M:177:PHE:CZ	19:P:98:ILE:CD1	2.49	0.95
2:3:181:ILE:HD11	2:3:340:TYR:HH	1.24	0.95
16:M:177:PHE:CE1	19:P:98:ILE:HG13	2.00	0.95
4:A:197:PHE:CE2	18:O:374:HIS:NE2	2.34	0.94
2:3:195:HIS:HD2	24:X:-48:DT:C7	1.81	0.94
2:3:343:LEU:HD11	2:3:345:LYS:O	1.66	0.94
24:X:-48:DT:H4'	24:X:-47:DA:H5'	1.47	0.93
4:A:39:LYS:HE3	20:Q:30:VAL:HG12	1.49	0.93
24:X:-53:DG:O6	25:Y:53:DC:N4	2.00	0.92
26:Z:2:U:P	31:Z:102:GTP:O2'	2.26	0.92
24:X:7:DC:H2"	24:X:8:DT:H5'	1.53	0.90
2:3:195:HIS:CD2	24:X:-48:DT:O4	2.23	0.90
4:A:159:CYS:CB	18:O:531:MET:SD	2.60	0.90
25:Y:27:DA:C8	25:Y:28:DT:C5	2.60	0.90
2:3:162:HIS:CD2	2:3:342:LEU:CD1	2.55	0.89
24:X:-24:DA:H2"	24:X:-23:DT:C5	2.08	0.89
2:3:162:HIS:CD2	2:3:342:LEU:HD13	2.07	0.89
2:3:162:HIS:HD2	2:3:342:LEU:CD1	1.86	0.89
24:X:-43:DC:O2	25:Y:43:DG:N2	2.06	0.88
4:A:214:ALA:HB1	18:O:407:GLN:NE2	1.89	0.88
16:M:177:PHE:CZ	19:P:98:ILE:CG1	2.56	0.87
4:A:203:HIS:CE1	18:O:383:PHE:HZ	1.84	0.87
23:W:299:TYR:OH	25:Y:36:DA:O5'	1.90	0.87
19:P:147:LYS:CG	25:Y:14:DT:H4'	2.04	0.87
4:A:203:HIS:NE2	18:O:383:PHE:HZ	1.70	0.86
5:B:486:GLU:O	26:Z:3:G:OP2	1.92	0.86
4:A:123:LYS:CD	18:O:68:HIS:CD2	2.58	0.86
24:X:-50:DA:H2	25:Y:50:DT:H3	1.21	0.85
2:3:195:HIS:HD2	24:X:-48:DT:H71	1.40	0.85
4:A:26:GLU:HG2	19:P:297:HIS:HB2	1.58	0.84
31:Z:102:GTP:H8	31:Z:102:GTP:C5'	1.90	0.84
4:A:196:SER:HB2	18:O:373:LYS:HB3	1.59	0.84
4:A:230:ILE:O	18:O:2:THR:N	2.09	0.84
24:X:-53:DG:N1	25:Y:53:DC:N3	2.26	0.83
4:A:123:LYS:HD2	18:O:68:HIS:CD2	2.13	0.83
16:M:171:LYS:NZ	19:P:67:ARG:HD2	1.93	0.83
2:3:145:THR:HG21	25:Y:57:DT:OP1	1.79	0.83
24:X:-43:DC:N3	25:Y:43:DG:N1	2.24	0.83
4:A:130:LYS:CE	18:O:34:GLN:NE2	2.41	0.83

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:X:-49:DG:N2	25:Y:49:DC:N4	1.89	0.82
25:Y:50:DT:H2"	25:Y:51:DT:H71	1.60	0.82
22:V:76:VAL:HG22	22:V:118:VAL:HG13	1.62	0.82
4:A:232:ALA:CB	18:O:6:ILE:HD11	2.09	0.82
25:Y:-19:DT:H2"	25:Y:-18:DG:C8	2.14	0.82
25:Y:0:DC:H2'	25:Y:1:DG:H5"	1.62	0.82
2:3:340:TYR:H	2:3:341:PRO:HD3	1.44	0.81
5:B:685:TYR:CE2	28:B:1202:3AT:O1G	2.34	0.81
18:O:274:SER:HG	18:O:285:THR:HG1	1.25	0.80
23:W:299:TYR:CE2	25:Y:35:DA:H1'	2.16	0.80
19:P:284:ARG:HD3	20:Q:48:LEU:HA	1.62	0.80
4:A:232:ALA:HB3	18:O:6:ILE:HD11	1.64	0.80
25:Y:39:DA:H1'	25:Y:40:DA:H5'	1.65	0.79
2:3:181:ILE:HG12	2:3:340:TYR:CE1	2.17	0.79
4:A:232:ALA:CB	18:O:6:ILE:CD1	2.61	0.79
4:A:196:SER:O	18:O:373:LYS:CB	2.26	0.79
4:A:221:LEU:HB3	18:O:402:ASN:HD21	1.48	0.79
5:B:1023:ARG:NH1	5:B:1042:ASP:O	2.14	0.79
4:A:232:ALA:HB2	18:O:6:ILE:CD1	2.12	0.79
22:V:173:VAL:HG21	22:V:208:VAL:HG21	1.62	0.79
5:B:105:ARG:NH2	5:B:873:SER:O	2.16	0.78
25:Y:16:DC:H4'	25:Y:17:DC:OP1	1.83	0.78
2:3:340:TYR:N	2:3:341:PRO:CD	2.46	0.78
22:V:173:VAL:HG22	22:V:226:ILE:HD12	1.65	0.78
8:E:95:GLN:OE1	8:E:125:TYR:OH	2.02	0.78
4:A:303:THR:N	18:O:396:TYR:OH	2.17	0.78
24:X:-54:DT:O4	25:Y:54:DA:N6	2.17	0.78
4:A:203:HIS:NE2	18:O:383:PHE:CE2	2.52	0.77
16:M:177:PHE:HZ	19:P:98:ILE:HB	1.49	0.77
4:A:868:THR:HG21	4:A:1046:THR:HG23	1.66	0.77
4:A:130:LYS:HE2	18:O:34:GLN:NE2	2.00	0.77
4:A:231:PRO:HA	18:O:2:THR:HG1	1.46	0.77
25:Y:47:DT:H2"	25:Y:48:DA:C8	2.20	0.77
2:3:266:GLU:OE1	16:M:312:ARG:NH2	2.18	0.77
4:A:232:ALA:HB1	18:O:30:ARG:HG3	1.68	0.76
5:B:401:ASP:OD1	22:V:143:TYR:OH	2.03	0.76
2:3:181:ILE:HG12	2:3:340:TYR:HE1	1.49	0.76
4:A:196:SER:HB2	18:O:373:LYS:CB	2.16	0.76
19:P:147:LYS:HG3	25:Y:14:DT:H4'	1.67	0.76
23:W:379:GLU:OE2	23:W:383:GLN:NE2	2.20	0.75
24:X:-48:DT:C4	24:X:-47:DA:C6	2.74	0.75

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:W:299:TYR:OH	25:Y:36:DA:O4'	2.05	0.75
24:X:-55:DT:C6	24:X:-54:DT:H71	2.20	0.75
4:A:159:CYS:HB3	18:O:531:MET:SD	2.26	0.75
2:3:195:HIS:CD2	24:X:-48:DT:C7	2.69	0.75
23:W:299:TYR:HE2	25:Y:35:DA:H1'	1.47	0.75
4:A:374:ASN:ND2	5:B:749:TYR:OH	2.20	0.75
25:Y:53:DC:H2"	25:Y:54:DA:C8	2.22	0.75
4:A:282:LYS:NZ	4:A:316:GLN:OE1	2.20	0.74
4:A:203:HIS:HE1	18:O:383:PHE:CZ	2.00	0.74
19:P:284:ARG:HB3	20:Q:48:LEU:HD13	1.68	0.74
2:3:195:HIS:CD2	24:X:-49:DG:C6	2.70	0.74
2:3:196:LYS:HE3	24:X:-50:DA:C8	2.23	0.74
19:P:159:ARG:NH1	19:P:233:GLU:OE2	2.21	0.74
3:4:151:LYS:NZ	3:4:154:VAL:O	2.18	0.74
4:A:203:HIS:CB	18:O:379:GLN:CD	2.61	0.74
5:B:486:GLU:N	26:Z:3:G:OP1	2.19	0.74
22:V:202:SER:O	22:V:206:GLN:NE2	2.19	0.74
24:X:-49:DG:N2	25:Y:49:DC:C4	2.56	0.74
24:X:-58:DA:H2"	24:X:-57:DA:C8	2.23	0.74
18:O:507:ASN:OD1	20:Q:62:GLN:NE2	2.20	0.74
4:A:39:LYS:HE3	20:Q:30:VAL:CG1	2.17	0.73
26:Z:4:C:OP2	26:Z:4:C:H3'	1.87	0.73
21:U:297:LYS:HB2	21:U:298:PRO:HD3	1.69	0.73
19:P:284:ARG:CZ	20:Q:49:LYS:HG3	2.18	0.73
5:B:463:ARG:HH11	24:X:6:DG:H4'	1.53	0.73
4:A:303:THR:OG1	18:O:424:TYR:OH	2.04	0.73
4:A:29:ARG:NH1	19:P:301:GLU:OE1	2.22	0.73
24:X:-41:DA:H2"	24:X:-40:DT:H71	1.71	0.73
5:B:89:GLU:OE2	15:L:42:ARG:NE	2.22	0.73
24:X:-46:DT:H2"	24:X:-45:DT:H71	1.71	0.73
25:Y:27:DA:C8	25:Y:28:DT:C7	2.72	0.73
19:P:289:LEU:HD12	20:Q:45:PRO:HA	1.72	0.72
2:3:162:HIS:HD2	2:3:342:LEU:HD11	1.53	0.72
18:O:51:LYS:HE2	20:Q:109:GLU:O	1.89	0.72
16:M:36:SER:OG	16:M:37:MET:SD	2.44	0.72
16:M:177:PHE:CE1	19:P:98:ILE:CG1	2.72	0.72
4:A:123:LYS:HE2	18:O:68:HIS:HD2	1.54	0.72
19:P:137:LYS:NZ	19:P:152:LEU:O	2.22	0.72
24:X:0:DG:C1'	24:X:1:DT:H5"	2.19	0.72
25:Y:49:DC:C6	25:Y:50:DT:H72	2.24	0.72
5:B:685:TYR:HE2	28:B:1202:3AT:O1G	1.71	0.72

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:3:145:THR:CG2	25:Y:57:DT:OP1	2.38	0.71
5:B:313:LEU:O	5:B:331:LYS:NZ	2.19	0.71
2:3:245:ASP:OD1	16:M:312:ARG:NH1	2.22	0.71
16:M:177:PHE:CZ	19:P:98:ILE:HB	2.25	0.71
4:A:1273:TYR:O	4:A:1277:ASN:ND2	2.24	0.71
24:X:-23:DT:H1'	24:X:-22:DC:C4	2.26	0.71
4:A:159:CYS:HB2	18:O:531:MET:SD	2.29	0.71
18:O:159:ARG:NH2	18:O:189:LEU:O	2.23	0.71
25:Y:28:DT:OP2	25:Y:28:DT:H3'	1.90	0.71
25:Y:45:DA:H2"	25:Y:46:DA:N7	2.05	0.71
2:3:162:HIS:CD2	2:3:342:LEU:HD11	2.23	0.71
1:1:31:GLU:O	1:1:35:ASN:ND2	2.24	0.71
4:A:199:THR:OG1	18:O:372:LYS:HD2	1.91	0.70
4:A:995:THR:HG22	4:A:997:PRO:HD2	1.71	0.70
24:X:1:DT:H2"	24:X:2:DG:H5"	1.71	0.70
24:X:22:DT:H2"	24:X:23:DA:C8	2.26	0.70
3:4:365:ARG:NH1	3:4:367:GLY:O	2.23	0.70
4:A:200:ALA:HB2	18:O:374:HIS:HB2	1.72	0.70
4:A:292:VAL:HG22	20:Q:28:PRO:HG3	1.72	0.70
24:X:8:DT:C6	24:X:9:DT:H72	2.27	0.70
25:Y:16:DC:H1'	25:Y:17:DC:O5'	1.91	0.70
5:B:183:GLN:NE2	5:B:363:GLU:OE2	2.25	0.70
24:X:0:DG:H4'	24:X:1:DT:OP1	1.90	0.70
25:Y:50:DT:C2'	25:Y:51:DT:H71	2.20	0.69
5:B:1023:ARG:NH2	5:B:1027:PRO:O	2.24	0.69
19:P:289:LEU:CD1	20:Q:45:PRO:HA	2.22	0.69
23:W:294:PHE:CE1	24:X:-31:DT:H4'	2.27	0.69
9:F:69:ARG:NE	9:F:96:GLU:OE1	2.26	0.69
6:C:149:ASN:ND2	6:C:151:HIS:O	2.25	0.69
24:X:-55:DT:C5	24:X:-54:DT:C7	2.75	0.69
24:X:20:DT:H2"	24:X:21:DA:C8	2.27	0.69
2:3:340:TYR:H	2:3:341:PRO:CD	2.04	0.69
4:A:123:LYS:CD	18:O:68:HIS:HD2	2.05	0.69
18:O:255:VAL:HG21	18:O:267:VAL:HG11	1.75	0.69
24:X:-1:DC:H2"	24:X:0:DG:H3'	1.74	0.69
4:A:533:ARG:NH1	4:A:1043:GLU:OE1	2.25	0.68
18:O:265:GLU:OE1	18:O:268:ARG:NH1	2.26	0.68
4:A:485:THR:OG1	4:A:487:ARG:NH1	2.27	0.68
22:V:278:GLU:OE2	22:V:287:ARG:NH2	2.26	0.68
26:Z:2:U:P	31:Z:102:GTP:C2'	2.82	0.68
4:A:26:GLU:CG	19:P:297:HIS:HB2	2.23	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:G:115:GLN:NE2	10:G:192:GLU:O	2.26	0.68
23:W:343:ARG:NH2	24:X:-34:DG:H3'	2.07	0.68
4:A:414:VAL:HG12	4:A:416:PRO:HD2	1.76	0.68
4:A:1185:MET:SD	4:A:1185:MET:N	2.67	0.68
25:Y:-21:DT:H2"	25:Y:-20:DA:C8	2.29	0.68
2:3:304:LYS:N	2:3:309:TYR:OH	2.27	0.68
21:U:171:THR:HG22	21:U:220:VAL:HG22	1.74	0.68
25:Y:28:DT:H2"	25:Y:29:DA:N7	2.08	0.68
4:A:302:LYS:C	18:O:396:TYR:OH	2.37	0.67
24:X:7:DC:C2'	24:X:8:DT:H5'	2.24	0.67
7:D:41:ASN:ND2	10:G:35:ALA:O	2.28	0.67
11:H:20:LYS:NZ	11:H:22:PHE:O	2.27	0.67
16:M:171:LYS:HZ3	19:P:67:ARG:HD2	1.60	0.67
22:V:169:LEU:O	22:V:173:VAL:HG23	1.95	0.67
24:X:15:DG:C1'	24:X:16:DC:H5'	2.25	0.67
5:B:195:ARG:NH2	24:X:6:DG:OP2	2.27	0.67
22:V:72:GLY:O	22:V:76:VAL:HG23	1.94	0.67
25:Y:37:DG:H2"	25:Y:38:DA:C8	2.30	0.67
4:A:1230:ASP:OD1	4:A:1250:ASN:ND2	2.27	0.67
21:U:313:THR:HG21	24:X:-28:DA:H1'	1.77	0.67
3:4:264:GLU:O	3:4:268:ASN:ND2	2.26	0.67
18:O:270:MET:HE2	18:O:336:ILE:HD11	1.76	0.67
5:B:554:LYS:NZ	17:N:347:ASP:OD2	2.22	0.67
19:P:147:LYS:HG2	25:Y:14:DT:H4'	1.76	0.67
25:Y:27:DA:N7	25:Y:28:DT:C5	2.64	0.66
25:Y:49:DC:H2'	25:Y:50:DT:H72	1.77	0.66
4:A:1319:ALA:O	4:A:1324:THR:HG22	1.95	0.66
5:B:486:GLU:O	26:Z:3:G:P	2.52	0.66
19:P:310:MET:HG3	29:P:401:SF4:S2	2.35	0.66
22:V:176:TYR:CD1	22:V:223:LEU:HD11	2.31	0.66
19:P:122:GLU:OE1	19:P:122:GLU:N	2.28	0.66
25:Y:-18:DG:H2"	25:Y:-17:DT:C5'	2.26	0.66
4:A:199:THR:HG21	18:O:372:LYS:HD2	1.78	0.66
22:V:186:SER:OG	22:V:189:VAL:HG12	1.95	0.66
2:3:196:LYS:CE	24:X:-50:DA:N7	2.59	0.66
4:A:123:LYS:CE	18:O:68:HIS:HD2	2.09	0.65
4:A:203:HIS:CE1	18:O:383:PHE:CE2	2.84	0.65
4:A:773:LYS:O	4:A:774:SER:OG	2.13	0.65
24:X:-27:DT:H2"	24:X:-26:DA:O4'	1.97	0.65
24:X:-14:DA:H2"	24:X:-13:DA:C5'	2.23	0.65
25:Y:45:DA:H2"	25:Y:46:DA:C8	2.31	0.65

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:741:VAL:HG21	5:B:1009:TYR:CE1	2.31	0.65
5:B:903:GLN:OE1	5:B:937:ARG:NH1	2.30	0.65
24:X:14:DA:H4'	24:X:15:DG:OP1	1.95	0.65
24:X:-55:DT:C5	24:X:-54:DT:H73	2.31	0.65
25:Y:-18:DG:H2"	25:Y:-17:DT:O5'	1.97	0.65
26:Z:2:U:C2	31:Z:102:GTP:N2	2.64	0.65
4:A:1152:SER:OG	4:A:1200:VAL:O	2.14	0.65
25:Y:25:DA:C2'	25:Y:26:DT:H5'	2.25	0.65
4:A:197:PHE:CD2	18:O:374:HIS:CD2	2.84	0.65
6:C:141:ARG:NH1	6:C:209:ASP:OD1	2.29	0.65
8:E:39:GLU:OE2	8:E:43:GLN:NE2	2.30	0.64
16:M:177:PHE:CZ	19:P:98:ILE:HG13	2.29	0.64
2:3:162:HIS:HD2	2:3:342:LEU:HD13	1.52	0.64
11:H:28:LEU:HD21	11:H:50:VAL:HG21	1.79	0.64
22:V:267:GLN:NE2	24:X:-38:DT:OP1	2.30	0.64
5:B:633:LEU:HD11	5:B:656:HIS:CD2	2.33	0.64
16:M:177:PHE:CZ	19:P:98:ILE:CB	2.81	0.64
3:4:151:LYS:NZ	3:4:154:VAL:HG23	2.13	0.64
11:H:8:ASP:OD1	11:H:9:ILE:N	2.31	0.64
24:X:-27:DT:H2"	24:X:-26:DA:C5'	2.27	0.64
24:X:1:DT:OP1	24:X:1:DT:H4'	1.97	0.64
25:Y:15:DT:H1'	25:Y:16:DC:C6	2.32	0.64
4:A:203:HIS:HB3	18:O:379:GLN:CD	2.23	0.64
4:A:214:ALA:CB	18:O:407:GLN:HE21	2.02	0.64
7:D:108:LEU:O	7:D:109:THR:OG1	2.15	0.64
19:P:307:CYS:O	19:P:311:THR:OG1	2.15	0.64
25:Y:-18:DG:OP2	25:Y:-18:DG:H3'	1.97	0.64
25:Y:-4:DT:H2'	25:Y:-3:DG:C8	2.33	0.64
5:B:915:ASP:OD1	6:C:78:ARG:NH2	2.31	0.64
18:O:147:THR:HG22	18:O:150:ARG:HH22	1.62	0.64
4:A:197:PHE:CZ	18:O:374:HIS:CE1	2.86	0.63
2:3:196:LYS:HE3	24:X:-50:DA:N7	2.12	0.63
5:B:258:GLU:OE1	5:B:258:GLU:N	2.31	0.63
24:X:-50:DA:H2	25:Y:50:DT:N3	1.96	0.63
25:Y:0:DC:C2'	25:Y:1:DG:H5"	2.27	0.63
24:X:-45:DT:H2"	24:X:-44:DT:C6	2.34	0.63
10:G:152:VAL:HG22	10:G:189:SER:OG	1.99	0.63
5:B:914:GLU:O	6:C:78:ARG:NH1	2.32	0.63
19:P:98:ILE:HD13	19:P:115:LYS:HD3	1.81	0.63
4:A:876:VAL:HG11	5:B:1053:ASP:CG	2.24	0.63
4:A:1054:HIS:HD2	4:A:1065:LEU:HD12	1.64	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:D:33:ASN:OD1	7:D:34:LYS:N	2.32	0.63
13:J:36:ASP:OD1	13:J:46:ARG:NH1	2.32	0.63
19:P:232:MET:SD	19:P:262:SER:OG	2.55	0.63
25:Y:-9:DA:H2"	25:Y:-8:DA:C8	2.34	0.62
8:E:115:LYS:O	8:E:119:VAL:HG23	1.99	0.62
24:X:-47:DA:H2"	24:X:-46:DT:H72	1.80	0.62
4:A:372:ASP:N	4:A:490:GLU:OE2	2.32	0.62
23:W:295:ARG:HG2	25:Y:34:DC:H5'	1.82	0.62
24:X:-55:DT:H2"	24:X:-54:DT:O5'	1.98	0.62
31:Z:102:GTP:H8	31:Z:102:GTP:O5'	1.80	0.62
4:A:292:VAL:CG2	20:Q:28:PRO:HG3	2.29	0.62
11:H:33:GLU:OE1	11:H:33:GLU:N	2.32	0.62
16:M:221:GLU:HB3	17:N:374:THR:HG21	1.81	0.62
24:X:-22:DC:H1'	24:X:-21:DT:C2	2.35	0.62
24:X:3:DC:O2	24:X:4:DA:H2"	2.00	0.62
5:B:876:GLU:N	5:B:876:GLU:OE1	2.33	0.62
24:X:-36:DT:H2'	24:X:-35:DT:C6	2.35	0.62
25:Y:55:DA:H2"	25:Y:56:DG:C8	2.34	0.62
25:Y:56:DG:C2'	25:Y:57:DT:H71	2.30	0.62
9:F:84:GLU:N	9:F:86:GLU:OE1	2.33	0.62
4:A:1117:ILE:HG12	4:A:1130:VAL:HG13	1.82	0.61
5:B:524:ASN:O	16:M:134:GLN:NE2	2.33	0.61
24:X:-24:DA:H2"	24:X:-23:DT:C7	2.30	0.61
24:X:11:DG:H2'	24:X:12:DG:C8	2.35	0.61
25:Y:1:DG:C6	31:Z:102:GTP:O6	2.53	0.61
25:Y:15:DT:C2	25:Y:16:DC:C5	2.88	0.61
18:O:51:LYS:HD3	20:Q:110:MET:HA	1.82	0.61
16:M:347:GLU:OE2	16:M:351:ARG:NH2	2.33	0.61
21:U:169:VAL:HG13	21:U:222:THR:HG22	1.82	0.61
24:X:-24:DA:H2"	24:X:-23:DT:H72	1.82	0.61
24:X:15:DG:H1'	24:X:16:DC:H5'	1.82	0.61
4:A:199:THR:CG2	18:O:372:LYS:HD2	2.30	0.61
25:Y:-17:DT:H1'	25:Y:-16:DG:H5'	1.81	0.61
3:4:355:ARG:O	3:4:359:GLN:NE2	2.32	0.61
16:M:171:LYS:HZ3	19:P:67:ARG:CD	2.12	0.61
17:N:333:LYS:O	17:N:334:SER:OG	2.15	0.61
25:Y:47:DT:H2"	25:Y:48:DA:N7	2.15	0.61
25:Y:-25:DA:H2"	25:Y:-24:DG:N7	2.16	0.61
2:3:195:HIS:HE2	25:Y:48:DA:H61	1.47	0.61
25:Y:23:DA:C2'	25:Y:24:DT:H5"	2.26	0.61
20:Q:80:GLU:N	20:Q:80:GLU:OE1	2.34	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Y:39:DA:H1'	25:Y:40:DA:C5'	2.30	0.61
14:K:64:GLU:OE1	14:K:64:GLU:N	2.34	0.60
31:Z:102:GTP:C5'	31:Z:102:GTP:C8	2.81	0.60
10:G:184:TYR:O	10:G:185:THR:OG1	2.16	0.60
16:M:276:LEU:O	16:M:281:GLN:NE2	2.34	0.60
24:X:-37:DC:C6	24:X:-36:DT:H72	2.36	0.60
25:Y:27:DA:C8	25:Y:28:DT:C6	2.89	0.60
19:P:57:LEU:HD23	19:P:60:MET:HE2	1.83	0.60
21:U:188:ARG:NH1	22:V:391:GLN:O	2.34	0.60
22:V:238:GLN:OE1	22:V:242:ARG:NH2	2.34	0.60
24:X:20:DT:H2"	24:X:21:DA:N7	2.17	0.60
22:V:110:ARG:CZ	25:Y:22:DG:H5'	2.32	0.60
4:A:297:ARG:O	18:O:393:ASP:OD1	2.20	0.60
5:B:1021:HIS:NE2	5:B:1043:GLY:O	2.33	0.60
19:P:216:VAL:HG21	19:P:239:LEU:HD11	1.83	0.60
24:X:-53:DG:O6	25:Y:53:DC:C4	2.54	0.60
24:X:0:DG:H1'	24:X:1:DT:H5"	1.83	0.60
4:A:438:GLU:N	4:A:438:GLU:OE1	2.35	0.60
4:A:772:ASP:OD1	4:A:773:LYS:N	2.34	0.60
16:M:50:LYS:NZ	16:M:200:HIS:O	2.34	0.60
21:U:295:MET:HE2	21:U:298:PRO:HD3	1.82	0.60
24:X:0:DG:C4'	24:X:1:DT:H5"	2.31	0.60
2:3:195:HIS:CE1	25:Y:48:DA:H61	2.19	0.59
5:B:647:GLU:N	5:B:647:GLU:OE1	2.34	0.59
25:Y:20:DA:H2"	25:Y:21:DA:C8	2.37	0.59
31:Z:102:GTP:C8	31:Z:102:GTP:C4'	2.85	0.59
22:V:145:ASP:OD1	22:V:146:LEU:N	2.35	0.59
24:X:-41:DA:H2"	24:X:-40:DT:C7	2.32	0.59
5:B:24:GLU:OE1	5:B:24:GLU:N	2.35	0.59
5:B:254:MET:HE1	5:B:332:CYS:HB3	1.84	0.59
3:4:346:ARG:NH2	3:4:380:GLU:O	2.35	0.59
24:X:6:DG:H2"	24:X:7:DC:C6	2.37	0.59
4:A:197:PHE:CE1	18:O:374:HIS:CE1	2.91	0.59
4:A:232:ALA:HB3	18:O:6:ILE:CD1	2.28	0.59
1:1:17:ARG:O	1:1:21:THR:HG23	2.02	0.59
3:4:385:MET:HE1	24:X:-56:DC:H42	1.67	0.59
21:U:197:PHE:CE2	21:U:199:ALA:HB3	2.38	0.59
22:V:179:SER:HG	23:W:288:THR:CB	2.15	0.59
25:Y:16:DC:P	25:Y:16:DC:H3'	2.43	0.59
25:Y:58:DT:H1'	25:Y:59:DA:C5'	2.32	0.59
16:M:53:GLN:OE1	16:M:200:HIS:ND1	2.35	0.59

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:X:-46:DT:C2'	24:X:-45:DT:H71	2.33	0.59
25:Y:19:DC:H2"	25:Y:20:DA:O4'	2.03	0.59
4:A:200:ALA:HB2	18:O:374:HIS:CB	2.32	0.58
8:E:75:PHE:HZ	8:E:94:MET:HE3	1.68	0.58
13:J:28:GLU:OE2	16:M:396:LYS:N	2.36	0.58
21:U:309:LYS:HD3	25:Y:30:DA:H5"	1.84	0.58
4:A:203:HIS:HB2	18:O:379:GLN:CD	2.28	0.58
4:A:728:ILE:HD13	4:A:748:LEU:HD21	1.86	0.58
5:B:190:ILE:HG21	5:B:354:ARG:HE	1.67	0.58
11:H:87:GLN:N	11:H:87:GLN:OE1	2.37	0.58
16:M:412:HIS:O	16:M:416:VAL:HG23	2.02	0.58
4:A:159:CYS:O	18:O:531:MET:HB3	2.03	0.58
5:B:463:ARG:NE	5:B:465:VAL:HG22	2.17	0.58
19:P:214:HIS:HB3	19:P:260:VAL:HG22	1.85	0.58
25:Y:-23:DT:H2"	25:Y:-22:DA:C8	2.39	0.58
4:A:1206:GLU:OE1	4:A:1206:GLU:N	2.36	0.58
6:C:339:GLU:O	6:C:343:VAL:HG23	2.03	0.58
17:N:269:LEU:HD12	17:N:269:LEU:O	2.03	0.58
24:X:-23:DT:H1'	24:X:-22:DC:N4	2.18	0.58
24:X:14:DA:OP2	24:X:14:DA:H2'	2.03	0.58
2:3:195:HIS:CD2	24:X:-49:DG:C5	2.92	0.58
4:A:206:GLU:N	4:A:206:GLU:OE1	2.36	0.58
24:X:-48:DT:O4	24:X:-47:DA:N6	2.36	0.58
24:X:-49:DG:O3'	24:X:-48:DT:H2'	2.03	0.58
24:X:-27:DT:OP2	24:X:-27:DT:H3'	2.03	0.58
4:A:221:LEU:HB3	18:O:402:ASN:ND2	2.18	0.58
5:B:530:GLU:OE1	5:B:530:GLU:N	2.37	0.58
18:O:248:ASP:O	18:O:252:VAL:HG23	2.04	0.58
3:4:232:GLU:OE1	3:4:236:ARG:NH1	2.37	0.58
6:C:319:ASP:OD1	6:C:320:VAL:N	2.36	0.58
11:H:27:ARG:NE	11:H:42:ASP:OD1	2.35	0.58
14:K:28:GLU:N	14:K:28:GLU:OE1	2.37	0.58
19:P:313:TRP:HZ2	20:Q:48:LEU:HD21	1.68	0.58
25:Y:52:DT:H2"	25:Y:53:DC:C6	2.38	0.58
4:A:197:PHE:CD2	18:O:374:HIS:CG	2.92	0.58
11:H:7:GLU:HG3	11:H:59:VAL:HG22	1.86	0.58
16:M:177:PHE:CD2	19:P:98:ILE:HD12	2.35	0.58
26:Z:2:U:O5'	31:Z:102:GTP:O2'	2.21	0.58
2:3:266:GLU:OE2	2:3:266:GLU:N	2.37	0.57
4:A:111:THR:HG23	18:O:429:LEU:HD21	1.86	0.57
6:C:241:LEU:CD2	6:C:297:VAL:HG12	2.34	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:O:485:GLN:N	18:O:485:GLN:OE1	2.37	0.57
20:Q:52:GLU:N	20:Q:52:GLU:OE1	2.36	0.57
24:X:-1:DC:H4'	24:X:0:DG:OP1	2.03	0.57
22:V:395:THR:O	22:V:399:VAL:HG23	2.05	0.57
24:X:24:DC:H2"	24:X:25:DT:C5	2.40	0.57
25:Y:58:DT:H2"	25:Y:59:DA:H5'	1.85	0.57
3:4:260:SER:O	3:4:261:HIS:ND1	2.37	0.57
4:A:97:TYR:O	4:A:101:VAL:HG23	2.04	0.57
4:A:424:ARG:N	4:A:448:ASP:OD1	2.36	0.57
18:O:16:HIS:HA	20:Q:68:MET:HE3	1.85	0.57
25:Y:27:DA:N7	25:Y:28:DT:C4	2.73	0.57
25:Y:33:DC:H2"	25:Y:34:DC:C6	2.40	0.57
1:1:146:TYR:OH	2:3:320:VAL:HG11	2.05	0.57
6:C:109:ARG:NH2	6:C:198:LEU:O	2.37	0.57
24:X:-40:DT:C6	24:X:-39:DT:H72	2.39	0.57
26:Z:2:U:H5'	31:Z:102:GTP:HO2'	0.67	0.57
19:P:284:ARG:NH2	20:Q:49:LYS:CG	2.67	0.57
2:3:195:HIS:CD2	24:X:-48:DT:C4	2.92	0.57
24:X:-24:DA:H2"	24:X:-23:DT:C4	2.40	0.57
24:X:16:DC:H4'	24:X:17:DA:O5'	2.04	0.57
4:A:1140:LEU:HD23	12:I:49:VAL:HG22	1.85	0.57
5:B:685:TYR:HE2	28:B:1202:3AT:PG	2.28	0.57
18:O:134:GLU:N	18:O:134:GLU:OE1	2.38	0.57
19:P:289:LEU:HD12	20:Q:45:PRO:CA	2.35	0.57
8:E:94:MET:HE2	8:E:94:MET:HA	1.87	0.57
21:U:202:MET:HE2	21:U:202:MET:HA	1.86	0.57
22:V:78:ASP:O	22:V:82:VAL:HG23	2.05	0.57
22:V:232:LEU:HD12	22:V:269:LEU:HD23	1.86	0.57
23:W:328:LEU:HD13	23:W:367:PHE:CZ	2.39	0.57
4:A:111:THR:HG23	18:O:429:LEU:CD2	2.35	0.56
4:A:304:GLN:N	4:A:304:GLN:OE1	2.38	0.56
4:A:39:LYS:CE	20:Q:30:VAL:HG12	2.31	0.56
19:P:168:SER:OG	19:P:173:GLU:OE2	2.22	0.56
22:V:291:ARG:NH1	25:Y:42:DC:H5"	2.20	0.56
18:O:486:GLU:N	18:O:486:GLU:OE1	2.39	0.56
21:U:204:ILE:HD11	21:U:233:ALA:HA	1.86	0.56
24:X:-47:DA:C2	25:Y:48:DA:C2	2.93	0.56
24:X:-18:DT:H2'	24:X:-17:DG:C8	2.40	0.56
25:Y:37:DG:H2"	25:Y:38:DA:H8	1.71	0.56
25:Y:53:DC:H4'	25:Y:53:DC:OP1	2.03	0.56
2:3:181:ILE:CD1	2:3:340:TYR:CZ	2.85	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:E:85:LYS:O	8:E:89:VAL:HG23	2.05	0.56
21:U:169:VAL:HG22	21:U:222:THR:HG22	1.88	0.56
22:V:221:HIS:CD2	25:Y:33:DC:H5"	2.39	0.56
24:X:-43:DC:H2"	24:X:-42:DG:C8	2.40	0.56
25:Y:41:DT:H2"	25:Y:42:DC:C5	2.40	0.56
4:A:887:ASP:OD2	4:A:891:ARG:NH2	2.37	0.56
5:B:889:ARG:NH1	5:B:1015:MET:SD	2.79	0.56
6:C:188:GLY:O	6:C:191:ARG:NH1	2.39	0.56
2:3:195:HIS:CD2	24:X:-48:DT:H71	2.32	0.56
4:A:196:SER:HB2	18:O:373:LYS:CG	2.35	0.56
6:C:130:GLU:N	6:C:130:GLU:OE1	2.38	0.56
16:M:171:LYS:NZ	19:P:67:ARG:CD	2.68	0.56
16:M:322:GLN:NE2	16:M:360:PHE:O	2.39	0.56
23:W:288:THR:HG23	23:W:289:THR:H	1.70	0.56
24:X:8:DT:C2'	24:X:9:DT:H72	2.36	0.56
25:Y:-15:DC:H2"	25:Y:-14:DT:C6	2.41	0.56
5:B:536:VAL:O	5:B:581:ARG:NH1	2.39	0.56
11:H:96:VAL:HG22	11:H:116:VAL:HG22	1.88	0.56
16:M:177:PHE:CE1	19:P:98:ILE:CD1	2.89	0.56
24:X:-53:DG:C6	25:Y:53:DC:N3	2.74	0.56
4:A:230:ILE:C	18:O:2:THR:N	2.64	0.56
1:1:79:LEU:HD21	1:1:126:PHE:HD1	1.70	0.55
18:O:505:ASN:HB3	19:P:314:LEU:HD13	1.87	0.55
19:P:284:ARG:NE	20:Q:49:LYS:HG3	2.22	0.55
25:Y:-1:DA:H2	26:Z:2:U:H3	1.51	0.55
2:3:203:THR:O	2:3:343:LEU:HD12	2.06	0.55
4:A:1250:ASN:O	4:A:1254:VAL:HG23	2.06	0.55
5:B:463:ARG:NH1	24:X:6:DG:H4'	2.20	0.55
22:V:274:LEU:HD21	22:V:289:ASP:C	2.31	0.55
5:B:103:ARG:NE	5:B:175:GLU:OE2	2.39	0.55
7:D:114:GLU:OE1	7:D:114:GLU:N	2.39	0.55
18:O:515:GLN:OE1	19:P:284:ARG:CD	2.53	0.55
21:U:210:THR:HG21	25:Y:26:DT:H4'	1.88	0.55
24:X:0:DG:C2'	24:X:1:DT:H5"	2.37	0.55
26:Z:2:U:O2	31:Z:102:GTP:N2	2.39	0.55
3:4:183:LYS:HD2	24:X:-48:DT:OP1	2.07	0.55
4:A:1125:ASP:OD1	4:A:1126:CYS:N	2.38	0.55
5:B:824:LYS:NZ	22:V:18:ASP:OD1	2.40	0.55
24:X:-50:DA:C2	25:Y:50:DT:N3	2.68	0.55
25:Y:19:DC:H2"	25:Y:20:DA:C5'	2.36	0.55
4:A:158:HIS:O	18:O:533:ARG:HG3	2.07	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:104:ILE:HD11	4:A:1333:TYR:HE1	1.71	0.55
6:C:241:LEU:HD23	6:C:297:VAL:HG12	1.87	0.55
6:C:263:GLU:OE2	6:C:274:ARG:NH1	2.40	0.55
18:O:510:ASP:HB2	20:Q:58:LEU:CD1	2.37	0.55
21:U:288:PHE:CE1	24:X:-30:DT:H1'	2.41	0.55
24:X:-55:DT:C6	24:X:-54:DT:C7	2.89	0.55
24:X:16:DC:H1'	24:X:17:DA:C8	2.42	0.55
25:Y:-4:DT:H2'	25:Y:-3:DG:H8	1.70	0.55
7:D:88:ASN:O	7:D:90:ARG:NH2	2.40	0.55
22:V:146:LEU:HD13	22:V:146:LEU:O	2.07	0.55
24:X:16:DC:OP2	24:X:16:DC:H3'	2.06	0.55
4:A:561:ARG:NH1	14:K:60:MET:SD	2.79	0.55
4:A:756:LEU:HD22	4:A:833:PHE:CD1	2.42	0.55
21:U:199:ALA:HB2	21:U:214:PHE:CE2	2.42	0.55
5:B:848:GLN:N	5:B:848:GLN:OE1	2.40	0.55
24:X:-58:DA:H2"	24:X:-57:DA:H8	1.72	0.55
25:Y:42:DC:H2"	25:Y:43:DG:C8	2.42	0.55
2:3:181:ILE:HD13	2:3:340:TYR:OH	1.99	0.54
4:A:233:GLU:CA	18:O:30:ARG:O	2.41	0.54
5:B:254:MET:HE3	5:B:333:ILE:HD13	1.89	0.54
5:B:946:LEU:HD22	5:B:1003:TYR:CE2	2.42	0.54
6:C:266:GLU:N	6:C:266:GLU:OE1	2.40	0.54
16:M:171:LYS:HZ2	19:P:67:ARG:HD2	1.72	0.54
19:P:151:MET:HE1	19:P:157:PRO:HA	1.90	0.54
24:X:-54:DT:H3	25:Y:54:DA:N6	2.06	0.54
24:X:-40:DT:H2'	24:X:-39:DT:H72	1.89	0.54
4:A:396:VAL:HG22	4:A:404:LEU:HD13	1.89	0.54
4:A:415:HIS:CE1	4:A:480:VAL:HG11	2.42	0.54
5:B:901:HIS:NE2	5:B:945:GLU:OE1	2.40	0.54
5:B:904:LYS:NZ	26:Z:4:C:OP1	2.28	0.54
2:3:195:HIS:CD2	24:X:-48:DT:H72	2.42	0.54
4:A:203:HIS:CB	18:O:379:GLN:NE2	2.71	0.54
6:C:9:GLU:OE2	6:C:298:ARG:NH1	2.40	0.54
18:O:509:LEU:HD23	19:P:313:TRP:HZ3	1.71	0.54
6:C:144:VAL:HG21	6:C:168:VAL:HG13	1.90	0.54
25:Y:53:DC:C2'	25:Y:54:DA:C8	2.90	0.54
26:Z:4:C:H6	26:Z:4:C:H5'	1.73	0.54
5:B:79:ASN:N	5:B:116:ASP:OD1	2.36	0.54
8:E:5:GLU:N	8:E:5:GLU:OE1	2.40	0.54
24:X:-53:DG:H2"	24:X:-52:DA:C8	2.43	0.54
25:Y:27:DA:H8	25:Y:28:DT:H71	1.73	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Y:58:DT:H1'	25:Y:59:DA:H5'	1.90	0.54
4:A:306:ILE:HG13	18:O:396:TYR:CE2	2.42	0.54
24:X:-50:DA:N1	25:Y:50:DT:O4	2.40	0.54
2:3:289:GLN:N	2:3:289:GLN:OE1	2.41	0.54
24:X:8:DT:H2"	24:X:9:DT:C7	2.38	0.54
4:A:937:GLU:OE1	4:A:1007:THR:OG1	2.25	0.54
7:D:102:GLU:N	7:D:102:GLU:OE1	2.39	0.54
8:E:121:MET:HE2	8:E:121:MET:HA	1.90	0.54
19:P:83:GLY:N	19:P:92:GLU:OE2	2.41	0.54
24:X:-41:DA:H2"	24:X:-40:DT:C6	2.43	0.54
2:3:230:GLU:OE2	2:3:401:ALA:N	2.41	0.53
19:P:140:LYS:NZ	25:Y:16:DC:OP1	2.41	0.53
24:X:-20:DT:H1'	24:X:-19:DG:N7	2.23	0.53
24:X:0:DG:H4'	24:X:1:DT:H5"	1.89	0.53
25:Y:-11:DC:H2"	25:Y:-10:DG:C8	2.42	0.53
25:Y:-1:DA:C2	26:Z:3:G:C6	2.95	0.53
4:A:203:HIS:HB3	18:O:379:GLN:NE2	2.22	0.53
18:O:45:THR:OG1	18:O:49:GLN:OE1	2.26	0.53
24:X:-39:DT:C6	24:X:-38:DT:H72	2.43	0.53
24:X:-29:DT:H2'	24:X:-28:DA:C4	2.43	0.53
4:A:77:ALA:O	5:B:1033:ARG:NH1	2.42	0.53
24:X:-47:DA:H2"	24:X:-46:DT:C5	2.44	0.53
24:X:15:DG:N2	25:Y:-14:DT:O2	2.41	0.53
2:3:195:HIS:CG	24:X:-49:DG:C6	2.92	0.53
4:A:428:MET:HA	4:A:428:MET:HE2	1.90	0.53
24:X:15:DG:C4'	24:X:16:DC:H5'	2.39	0.53
25:Y:-1:DA:N1	26:Z:2:U:C4	2.71	0.53
5:B:465:VAL:O	5:B:466:SER:OG	2.17	0.53
6:C:324:GLU:O	6:C:328:VAL:HG23	2.08	0.53
24:X:-14:DA:H4'	24:X:-13:DA:OP1	2.07	0.53
4:A:258:PRO:HB2	4:A:262:ILE:HD12	1.89	0.53
18:O:22:GLU:O	18:O:26:VAL:HG23	2.08	0.53
4:A:529:LEU:HA	4:A:539:ILE:HD13	1.90	0.53
18:O:350:LEU:O	18:O:354:VAL:HG23	2.09	0.53
25:Y:57:DT:H2'	25:Y:58:DT:C7	2.39	0.53
5:B:128:ARG:HH12	5:B:403:VAL:HG11	1.74	0.53
18:O:374:HIS:HB3	18:O:423:LEU:HD23	1.91	0.53
23:W:328:LEU:HD13	23:W:367:PHE:HZ	1.74	0.53
24:X:-53:DG:H2"	24:X:-52:DA:N7	2.23	0.53
4:A:404:LEU:O	4:A:408:VAL:HG23	2.09	0.53
4:A:468:LEU:HD22	4:A:1046:THR:HG21	1.90	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:1051:GLU:N	5:B:1051:GLU:OE1	2.39	0.53
18:O:381:GLU:OE2	18:O:392:LYS:NZ	2.32	0.53
24:X:3:DC:H2"	24:X:4:DA:H4'	1.91	0.53
24:X:21:DA:C2'	24:X:22:DT:H71	2.39	0.53
6:C:133:THR:O	6:C:137:THR:HG22	2.09	0.53
1:1:111:GLN:O	1:1:115:VAL:HG23	2.09	0.52
4:A:465:GLN:HG2	25:Y:-2:DC:H1'	1.89	0.52
24:X:-41:DA:H2"	24:X:-40:DT:C5	2.43	0.52
24:X:3:DC:O3'	24:X:4:DA:H4'	2.09	0.52
25:Y:18:DA:H2"	25:Y:19:DC:C5	2.44	0.52
24:X:-48:DT:C4	24:X:-47:DA:N6	2.78	0.52
24:X:-33:DG:H4'	24:X:-32:DC:OP1	2.08	0.52
25:Y:-14:DT:H2"	25:Y:-13:DG:C8	2.44	0.52
4:A:123:LYS:HD3	18:O:68:HIS:CD2	2.41	0.52
4:A:1054:HIS:CD2	4:A:1065:LEU:HD12	2.43	0.52
24:X:-1:DC:C2'	24:X:0:DG:H3'	2.38	0.52
25:Y:1:DG:C2'	25:Y:2:DG:H5'	2.39	0.52
4:A:589:LEU:HD12	4:A:590:LYS:N	2.24	0.52
6:C:115:ILE:HG22	6:C:117:ALA:H	1.74	0.52
14:K:63:PRO:O	14:K:87:ARG:NE	2.42	0.52
24:X:-31:DT:H2'	24:X:-30:DT:C6	2.45	0.52
1:1:14:LEU:HD23	1:1:81:LEU:HD22	1.91	0.52
5:B:40:VAL:HG13	5:B:452:MET:HE2	1.91	0.52
18:O:78:GLN:O	18:O:82:VAL:HG23	2.10	0.52
20:Q:54:GLU:N	20:Q:54:GLU:OE1	2.39	0.52
24:X:-1:DC:H2"	24:X:0:DG:C3'	2.39	0.52
2:3:369:ASP:OD2	2:3:388:HIS:NE2	2.42	0.52
3:4:151:LYS:HZ1	3:4:154:VAL:HG23	1.72	0.52
6:C:155:ASP:HB3	16:M:348:VAL:HG21	1.91	0.52
4:A:384:VAL:HG23	4:A:481:LYS:O	2.10	0.52
4:A:918:PRO:C	4:A:919:LEU:HD12	2.34	0.52
5:B:751:ILE:O	5:B:930:ASN:ND2	2.43	0.52
25:Y:1:DG:H2'	25:Y:2:DG:H5'	1.91	0.52
4:A:1159:ARG:NH2	24:X:18:DC:OP2	2.43	0.52
5:B:483:ASP:OD2	5:B:495:ASN:ND2	2.42	0.52
5:B:521:GLU:N	5:B:521:GLU:OE1	2.42	0.52
24:X:13:DC:H2"	24:X:14:DA:C8	2.45	0.52
25:Y:-1:DA:C2	26:Z:2:U:N3	2.78	0.52
4:A:838:PHE:O	5:B:677:HIS:ND1	2.38	0.52
6:C:261:VAL:HG13	6:C:262:ILE:HG12	1.92	0.52
10:G:93:SER:OG	10:G:96:GLY:O	2.24	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:M:9:VAL:HG23	16:M:10:VAL:HG22	1.91	0.52
19:P:175:GLU:O	19:P:179:VAL:HG23	2.09	0.52
3:4:173:ILE:O	3:4:173:ILE:HG23	2.10	0.51
4:A:864:LYS:O	4:A:865:THR:C	2.51	0.51
11:H:112:LEU:HD13	11:H:129:ALA:HB2	1.91	0.51
18:O:508:LYS:HG2	19:P:313:TRP:CZ2	2.45	0.51
21:U:169:VAL:HG22	21:U:222:THR:CG2	2.40	0.51
24:X:-32:DC:C6	24:X:-31:DT:H72	2.45	0.51
25:Y:-24:DG:C8	25:Y:-23:DT:H72	2.44	0.51
4:A:754:LYS:O	4:A:758:VAL:HG23	2.10	0.51
5:B:68:ASP:OD1	5:B:69:ALA:N	2.43	0.51
8:E:154:GLU:OE1	8:E:154:GLU:N	2.39	0.51
18:O:121:VAL:O	18:O:125:VAL:HG23	2.11	0.51
23:W:276:VAL:HG23	23:W:276:VAL:O	2.10	0.51
25:Y:-21:DT:H2”	25:Y:-20:DA:N7	2.26	0.51
1:1:26:PHE:HE2	2:3:103:VAL:HG21	1.74	0.51
4:A:196:SER:HB2	18:O:373:LYS:HG3	1.93	0.51
16:M:327:VAL:O	16:M:353:ARG:NH1	2.41	0.51
18:O:515:GLN:OE1	19:P:284:ARG:HD2	2.10	0.51
19:P:48:GLN:O	19:P:52:VAL:HG23	2.11	0.51
1:1:127:ARG:NH1	2:3:89:ASP:OD2	2.43	0.51
4:A:760:ARG:NH2	4:A:794:GLN:OE1	2.44	0.51
6:C:133:THR:OG1	6:C:136:ASP:OD1	2.22	0.51
16:M:215:ASP:OD1	16:M:216:SER:N	2.42	0.51
16:M:246:LEU:HD12	16:M:249:LEU:HD11	1.91	0.51
24:X:11:DG:H2”	24:X:12:DG:O5’	2.10	0.51
25:Y:42:DC:H2”	25:Y:43:DG:H8	1.75	0.51
5:B:209:GLU:N	5:B:209:GLU:OE1	2.43	0.51
16:M:134:GLN:OE1	16:M:136:ARG:NH2	2.42	0.51
24:X:-28:DA:C5	24:X:-27:DT:O4	2.63	0.51
25:Y:-9:DA:H5’	25:Y:-9:DA:N3	2.24	0.51
4:A:720:GLY:HA3	4:A:759:ILE:HD11	1.91	0.51
10:G:148:ILE:HG23	10:G:190:ILE:HG23	1.91	0.51
17:N:367:ASP:OD1	17:N:368:SER:N	2.44	0.51
21:U:208:ARG:O	21:U:223:GLY:HA3	2.10	0.51
25:Y:51:DT:H1’	25:Y:52:DT:H5’	1.93	0.51
4:A:415:HIS:O	4:A:453:HIS:ND1	2.44	0.51
4:A:731:LEU:CD2	4:A:748:LEU:HD22	2.40	0.51
8:E:65:ASN:OD1	8:E:66:ASP:N	2.43	0.51
25:Y:22:DG:H2”	25:Y:23:DA:C5’	2.40	0.51
2:3:334:CYS:O	2:3:340:TYR:HE2	1.93	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:631:GLU:OE2	5:B:656:HIS:NE2	2.43	0.51
16:M:186:ARG:O	16:M:190:VAL:HG23	2.11	0.51
18:O:452:PHE:CD1	19:P:305:SER:HB2	2.46	0.51
2:3:325:ASP:OD1	2:3:326:ILE:N	2.43	0.51
5:B:919:CYS:SG	5:B:989:VAL:HG22	2.51	0.51
24:X:16:DC:H3'	24:X:16:DC:P	2.51	0.51
4:A:669:ARG:NH2	4:A:910:ALA:O	2.43	0.51
5:B:412:THR:O	5:B:416:VAL:HG23	2.11	0.51
24:X:-39:DT:H2'	24:X:-38:DT:H72	1.92	0.51
24:X:10:DC:H2'	24:X:11:DG:C8	2.46	0.51
4:A:288:PHE:O	4:A:292:VAL:HG23	2.12	0.50
4:A:1207:VAL:HG13	4:A:1227:VAL:HG13	1.93	0.50
21:U:206:GLU:HG3	21:U:233:ALA:HB2	1.92	0.50
23:W:370:LEU:O	23:W:374:VAL:HG23	2.11	0.50
4:A:26:GLU:HG2	19:P:297:HIS:CB	2.34	0.50
4:A:662:ASN:OD1	4:A:664:PHE:N	2.44	0.50
4:A:1272:GLN:O	4:A:1276:VAL:HG23	2.11	0.50
5:B:23:VAL:HG23	5:B:26:LYS:HB2	1.94	0.50
19:P:121:THR:OG1	19:P:122:GLU:OE1	2.27	0.50
21:U:237:TYR:O	21:U:241:VAL:HG23	2.11	0.50
24:X:15:DG:O4'	24:X:16:DC:H5'	2.11	0.50
25:Y:49:DC:H2'	25:Y:50:DT:C7	2.40	0.50
4:A:130:LYS:NZ	18:O:34:GLN:NE2	2.60	0.50
5:B:315:SER:O	5:B:319:THR:HG22	2.11	0.50
5:B:459:PHE:O	5:B:462:THR:HG23	2.11	0.50
4:A:1007:THR:O	4:A:1011:VAL:HG23	2.11	0.50
7:D:96:GLU:HA	7:D:100:MET:HE2	1.93	0.50
19:P:284:ARG:CZ	20:Q:49:LYS:CG	2.89	0.50
23:W:288:THR:O	23:W:289:THR:HG23	2.11	0.50
24:X:-49:DG:N7	24:X:-48:DT:H72	2.26	0.50
24:X:-43:DC:H2"	24:X:-42:DG:N7	2.27	0.50
25:Y:36:DA:C2'	25:Y:37:DG:H5"	2.24	0.50
5:B:607:THR:HG1	5:B:610:HIS:HD1	1.55	0.50
5:B:634:ASP:OD1	5:B:635:VAL:N	2.41	0.50
25:Y:51:DT:H2"	25:Y:52:DT:C5	2.47	0.50
3:4:389:TYR:CD2	24:X:-59:DT:H72	2.47	0.50
4:A:26:GLU:OE1	4:A:26:GLU:N	2.40	0.50
4:A:203:HIS:HE2	18:O:383:PHE:HZ	1.35	0.50
4:A:927:ASN:O	4:A:931:VAL:HG23	2.12	0.50
5:B:335:THR:O	5:B:339:VAL:HG23	2.12	0.50
19:P:57:LEU:HD13	19:P:63:LEU:HD11	1.94	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:159:CYS:HB2	18:O:531:MET:HG2	1.94	0.50
5:B:248:ASP:O	5:B:252:VAL:HG23	2.12	0.50
23:W:288:THR:HG23	23:W:289:THR:N	2.27	0.50
24:X:-20:DT:H1'	24:X:-19:DG:C8	2.47	0.50
26:Z:2:U:H2'	26:Z:3:G:H8	1.77	0.50
1:1:79:LEU:HD21	1:1:126:PHE:CD1	2.46	0.50
4:A:1360:PHE:O	9:F:64:ARG:NH1	2.42	0.50
16:M:352:GLY:O	16:M:356:VAL:HG23	2.12	0.50
21:U:298:PRO:HG2	21:U:324:ALA:HB2	1.94	0.50
22:V:176:TYR:CE1	22:V:223:LEU:HD11	2.47	0.50
24:X:3:DC:C2'	24:X:4:DA:H4'	2.42	0.50
25:Y:19:DC:OP2	25:Y:19:DC:H3'	2.12	0.50
25:Y:30:DA:H2'	25:Y:31:DA:C8	2.47	0.50
11:H:111:ARG:C	11:H:112:LEU:HD12	2.37	0.49
25:Y:23:DA:H2"	25:Y:24:DT:C5'	2.29	0.49
4:A:461:LEU:HD21	5:B:1063:LEU:HD21	1.94	0.49
18:O:510:ASP:HB2	20:Q:58:LEU:HD13	1.94	0.49
21:U:309:LYS:CD	25:Y:30:DA:H5"	2.42	0.49
25:Y:58:DT:H1'	25:Y:59:DA:H5"	1.93	0.49
1:1:46:MET:HG2	2:3:140:ARG:HH22	1.77	0.49
4:A:262:ILE:HD11	5:B:1115:GLN:HB3	1.95	0.49
4:A:366:ARG:CD	25:Y:-1:DA:H4'	2.42	0.49
24:X:-53:DG:N2	25:Y:53:DC:O2	2.43	0.49
25:Y:28:DT:H2"	25:Y:29:DA:C8	2.46	0.49
7:D:3:VAL:HG12	10:G:7:MET:HG2	1.94	0.49
12:I:1:MET:SD	12:I:1:MET:N	2.79	0.49
19:P:42:MET:HG2	19:P:45:ILE:HD12	1.95	0.49
21:U:174:LEU:HD12	21:U:178:LEU:HD11	1.94	0.49
24:X:3:DC:H2"	24:X:4:DA:C4'	2.42	0.49
24:X:21:DA:H2'	24:X:22:DT:H71	1.94	0.49
25:Y:-25:DA:H2"	25:Y:-24:DG:C8	2.47	0.49
4:A:159:CYS:HA	18:O:531:MET:SD	2.52	0.49
4:A:1264:ARG:NE	4:A:1292:ASP:OD1	2.43	0.49
10:G:45:CYS:HA	10:G:76:VAL:HG12	1.95	0.49
19:P:42:MET:HE3	19:P:42:MET:HA	1.94	0.49
22:V:147:ASP:OD1	22:V:148:VAL:N	2.45	0.49
24:X:9:DT:H2"	24:X:10:DC:C6	2.47	0.49
4:A:1132:LEU:HD11	4:A:1149:VAL:HG21	1.93	0.49
4:A:1303:ILE:O	4:A:1303:ILE:HG22	2.12	0.49
11:H:14:ASP:OD1	11:H:15:ILE:N	2.46	0.49
26:Z:2:U:OP1	31:Z:102:GTP:O3'	2.18	0.49

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:3:394:ASN:OD1	2:3:395:LYS:N	2.46	0.49
4:A:159:CYS:HB2	18:O:531:MET:CG	2.43	0.49
5:B:594:ARG:NH2	5:B:663:THR:OG1	2.40	0.49
11:H:70:LEU:HD23	11:H:70:LEU:H	1.78	0.49
18:O:443:ILE:HD12	18:O:520:ILE:CD1	2.43	0.49
4:A:233:GLU:OE2	18:O:32:GLY:CA	2.61	0.49
5:B:367:GLN:OE1	5:B:367:GLN:N	2.44	0.49
5:B:618:TYR:HE1	16:M:289:VAL:HG11	1.77	0.49
18:O:449:ARG:HD3	19:P:304:PRO:O	2.13	0.49
25:Y:21:DA:H2"	25:Y:22:DG:OP2	2.13	0.49
4:A:855:ARG:HD3	5:B:471:LEU:HB2	1.95	0.49
4:A:1145:ASN:O	4:A:1149:VAL:HG23	2.13	0.49
11:H:136:GLU:O	11:H:139:SER:OG	2.30	0.49
19:P:304:PRO:HB3	29:P:401:SF4:S1	2.52	0.49
23:W:295:ARG:CG	25:Y:34:DC:H5'	2.42	0.49
4:A:872:GLN:O	4:A:876:VAL:HG23	2.13	0.48
6:C:239:ILE:HD12	6:C:239:ILE:N	2.27	0.48
7:D:62:SER:O	7:D:66:VAL:HG23	2.13	0.48
16:M:225:LEU:HD11	17:N:376:LEU:HD13	1.95	0.48
18:O:102:THR:OG1	18:O:147:THR:HG21	2.13	0.48
24:X:-55:DT:C7	24:X:-54:DT:H73	2.43	0.48
25:Y:1:DG:O6	31:Z:102:GTP:O6	2.31	0.48
25:Y:25:DA:H2'	25:Y:26:DT:H71	1.95	0.48
5:B:390:GLN:NE2	25:Y:12:DC:OP1	2.40	0.48
5:B:463:ARG:HE	5:B:465:VAL:HG22	1.78	0.48
24:X:8:DT:H2"	24:X:9:DT:H72	1.95	0.48
6:C:326:ILE:HG21	14:K:111:LEU:HB2	1.96	0.48
19:P:211:ALA:N	19:P:270:TYR:O	2.45	0.48
21:U:236:LYS:O	21:U:240:VAL:HG23	2.14	0.48
3:4:283:PHE:O	3:4:287:SER:OG	2.20	0.48
9:F:84:GLU:N	9:F:84:GLU:OE1	2.46	0.48
24:X:-45:DT:OP2	24:X:-45:DT:H2'	2.13	0.48
4:A:361:VAL:HG12	5:B:1072:SER:HB3	1.95	0.48
16:M:177:PHE:HZ	19:P:98:ILE:CB	2.20	0.48
18:O:367:ARG:HD2	19:P:244:TYR:O	2.14	0.48
21:U:313:THR:CG2	24:X:-28:DA:H1'	2.42	0.48
25:Y:27:DA:H2"	25:Y:28:DT:C3'	2.43	0.48
4:A:196:SER:CB	18:O:373:LYS:HG3	2.44	0.48
5:B:93:VAL:HG22	22:V:178:SER:CB	2.44	0.48
24:X:-38:DT:H2"	24:X:-37:DC:C6	2.48	0.48
5:B:338:MET:O	5:B:342:VAL:HG23	2.12	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:246:GLU:N	6:C:246:GLU:OE1	2.47	0.48
7:D:79:THR:HG23	7:D:82:GLU:H	1.79	0.48
17:N:149:GLU:N	17:N:149:GLU:OE1	2.45	0.48
21:U:304:ILE:N	21:U:304:ILE:HD12	2.29	0.48
10:G:146:GLU:N	10:G:146:GLU:OE1	2.46	0.48
16:M:161:SER:OG	16:M:164:ASP:OD1	2.31	0.48
24:X:-36:DT:H2"	24:X:-35:DT:O5'	2.14	0.48
4:A:219:ASN:O	4:A:223:VAL:HG23	2.14	0.48
11:H:41:LEU:HG	11:H:43:VAL:HG13	1.96	0.48
17:N:143:GLU:OE1	17:N:143:GLU:N	2.42	0.48
18:O:36:LEU:HD23	18:O:36:LEU:O	2.13	0.48
18:O:452:PHE:CG	19:P:305:SER:HB2	2.48	0.48
22:V:356:LEU:HD12	22:V:356:LEU:O	2.14	0.48
16:M:249:LEU:HD12	16:M:250:MET:HG2	1.96	0.47
21:U:242:GLN:NE2	21:U:248:ALA:O	2.47	0.47
23:W:298:TYR:CE2	24:X:-32:DC:H4'	2.48	0.47
4:A:159:CYS:CA	18:O:531:MET:SD	3.01	0.47
10:G:82:ASP:OD1	10:G:151:ARG:NH2	2.47	0.47
16:M:370:GLU:O	16:M:374:VAL:HG23	2.13	0.47
18:O:278:THR:HG21	18:O:285:THR:OG1	2.13	0.47
25:Y:-15:DC:H2"	25:Y:-14:DT:C5	2.49	0.47
24:X:-23:DT:H2"	24:X:-22:DC:C5	2.49	0.47
24:X:-20:DT:H4'	24:X:-19:DG:OP1	2.12	0.47
25:Y:-20:DA:H2"	25:Y:-19:DT:C6	2.50	0.47
3:4:264:GLU:OE1	3:4:264:GLU:N	2.44	0.47
5:B:741:VAL:HG22	5:B:927:ILE:HB	1.96	0.47
5:B:946:LEU:HD23	5:B:946:LEU:C	2.39	0.47
7:D:17:PHE:HB2	7:D:53:ILE:HG21	1.96	0.47
25:Y:-12:DC:H2"	25:Y:-11:DC:C6	2.50	0.47
3:4:344:LEU:HD11	3:4:381:GLY:HA3	1.97	0.47
22:V:146:LEU:HD12	23:W:294:PHE:CD2	2.49	0.47
22:V:232:LEU:HD21	22:V:266:LEU:HD11	1.96	0.47
25:Y:-26:DT:H2"	25:Y:-25:DA:C8	2.50	0.47
1:1:35:ASN:OD1	1:1:36:MET:N	2.48	0.47
4:A:1306:PHE:CE1	24:X:9:DT:H4'	2.49	0.47
2:3:143:THR:HB	24:X:-53:DG:OP1	2.14	0.47
4:A:741:GLY:HA3	12:I:53:LEU:HD21	1.97	0.47
4:A:861:THR:OG1	4:A:862:ALA:N	2.47	0.47
4:A:864:LYS:O	4:A:867:GLU:N	2.43	0.47
5:B:596:TYR:CD2	5:B:633:LEU:HD12	2.49	0.47
6:C:3:ALA:O	6:C:7:VAL:HG23	2.14	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:89:VAL:HG22	6:C:214:CYS:SG	2.54	0.47
11:H:18:GLU:N	11:H:18:GLU:OE1	2.48	0.47
16:M:56:VAL:N	16:M:104:SER:OG	2.48	0.47
18:O:349:THR:HG23	19:P:280:THR:HG21	1.97	0.47
19:P:158:ASP:OD1	19:P:159:ARG:N	2.48	0.47
19:P:238:ILE:O	19:P:241:THR:OG1	2.29	0.47
4:A:59:ARG:O	4:A:71:THR:OG1	2.33	0.47
13:J:14:VAL:HG22	13:J:49:LEU:HD21	1.95	0.47
22:V:268:GLU:O	22:V:272:VAL:HG23	2.15	0.47
22:V:280:LEU:HD12	22:V:283:LEU:HD12	1.96	0.47
4:A:221:LEU:HD13	18:O:399:LEU:O	2.15	0.47
28:B:1202:3AT:H2'1	28:B:1202:3AT:N3	2.27	0.47
10:G:89:ILE:HD12	10:G:97:VAL:HG21	1.96	0.47
16:M:409:ILE:HG23	16:M:416:VAL:HG21	1.97	0.47
21:U:305:PHE:CZ	25:Y:30:DA:H1'	2.50	0.47
24:X:0:DG:H4'	24:X:1:DT:C5'	2.44	0.47
25:Y:28:DT:H2"	25:Y:29:DA:C5	2.49	0.47
25:Y:34:DC:H2"	25:Y:35:DA:H8	1.80	0.47
3:4:154:VAL:O	3:4:154:VAL:HG23	2.15	0.47
4:A:130:LYS:NZ	18:O:34:GLN:HE21	2.13	0.47
5:B:333:ILE:O	5:B:337:VAL:HG23	2.14	0.47
18:O:20:ILE:HD11	20:Q:75:ILE:CG1	2.45	0.46
21:U:171:THR:HG21	24:X:-25:DT:H5'	1.96	0.46
24:X:-48:DT:C4	24:X:-47:DA:C5	3.02	0.46
24:X:-27:DT:H2'	24:X:-26:DA:C8	2.49	0.46
24:X:-24:DA:C2'	24:X:-23:DT:H72	2.45	0.46
24:X:-22:DC:H2"	24:X:-21:DT:C5	2.51	0.46
1:1:143:LEU:HD13	1:1:143:LEU:HA	1.67	0.46
21:U:208:ARG:HG3	25:Y:28:DT:OP1	2.16	0.46
22:V:116:VAL:HG11	22:V:152:THR:HB	1.97	0.46
24:X:17:DA:OP2	24:X:17:DA:H3'	2.15	0.46
25:Y:22:DG:H2"	25:Y:23:DA:H5'	1.97	0.46
25:Y:56:DG:H2'	25:Y:57:DT:H71	1.95	0.46
24:X:-36:DT:H3'	24:X:-35:DT:C7	2.45	0.46
1:1:116:ASN:ND2	1:1:116:ASN:O	2.49	0.46
4:A:204:ASN:OD1	4:A:207:VAL:HG23	2.16	0.46
6:C:221:ASP:OD2	15:L:58:ARG:NH2	2.48	0.46
21:U:214:PHE:CD2	24:X:-24:DA:H4'	2.50	0.46
24:X:-44:DT:H2"	24:X:-43:DC:C6	2.50	0.46
24:X:18:DC:H2"	24:X:19:DA:C8	2.50	0.46
25:Y:28:DT:H3'	25:Y:28:DT:P	2.56	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Y:29:DA:C2'	25:Y:30:DA:H5'	2.46	0.46
4:A:492:VAL:O	4:A:492:VAL:HG12	2.16	0.46
4:A:1357:THR:O	9:F:64:ARG:NH1	2.48	0.46
16:M:291:VAL:HG11	16:M:401:ILE:CG2	2.46	0.46
16:M:367:VAL:O	16:M:371:VAL:HG23	2.16	0.46
18:O:519:THR:OG1	19:P:280:THR:HB	2.16	0.46
21:U:188:ARG:NE	22:V:393:LEU:O	2.48	0.46
22:V:235:GLN:HB3	22:V:294:VAL:HG21	1.97	0.46
24:X:-55:DT:C5	24:X:-54:DT:H71	2.44	0.46
24:X:13:DC:H2"	24:X:14:DA:OP2	2.16	0.46
3:4:344:LEU:HD11	3:4:381:GLY:CA	2.46	0.46
5:B:141:ARG:NH2	5:B:162:PRO:O	2.48	0.46
5:B:313:LEU:HD23	5:B:317:ILE:HD12	1.98	0.46
18:O:260:ASP:OD1	18:O:261:GLN:N	2.48	0.46
18:O:481:GLU:OE2	18:O:485:GLN:NE2	2.46	0.46
24:X:-33:DG:OP2	24:X:-33:DG:H2'	2.15	0.46
25:Y:-18:DG:H2'	25:Y:-17:DT:C6	2.51	0.46
25:Y:-1:DA:H2	26:Z:2:U:N3	2.13	0.46
1:1:36:MET:HE3	1:1:38:PHE:HB3	1.97	0.46
5:B:722:THR:HG23	5:B:962:THR:HA	1.98	0.46
19:P:214:HIS:CB	19:P:260:VAL:HG22	2.45	0.46
3:4:344:LEU:HD12	3:4:345:LYS:N	2.30	0.46
5:B:216:MET:HE3	5:B:342:VAL:HG21	1.97	0.46
5:B:341:ARG:NH2	5:B:582:CYS:SG	2.89	0.46
13:J:33:ASP:OD1	13:J:34:ALA:N	2.47	0.46
16:M:218:SER:HA	17:N:374:THR:HG23	1.98	0.46
18:O:17:PHE:HB3	18:O:21:VAL:HG11	1.98	0.46
19:P:176:PHE:CE2	19:P:180:LEU:HD11	2.51	0.46
21:U:169:VAL:HG22	21:U:222:THR:HB	1.97	0.46
26:Z:4:C:H5'	26:Z:4:C:C6	2.51	0.46
1:1:80:TYR:OH	1:1:122:ALA:O	2.32	0.46
4:A:268:SER:OG	4:A:273:GLY:O	2.33	0.46
4:A:465:GLN:CG	25:Y:-2:DC:H1'	2.46	0.46
4:A:1043:GLU:OE2	4:A:1047:GLN:NE2	2.44	0.46
24:X:-35:DT:H2'	24:X:-34:DG:C8	2.51	0.46
25:Y:-22:DA:C2'	25:Y:-21:DT:H72	2.46	0.46
4:A:539:ILE:HG22	4:A:680:MET:HE1	1.98	0.46
4:A:1165:VAL:HG22	4:A:1175:VAL:HG22	1.98	0.46
5:B:168:TYR:HB3	5:B:177:VAL:HG22	1.98	0.46
5:B:430:LYS:HG3	24:X:1:DT:H1'	1.98	0.46
8:E:102:ALA:C	8:E:103:LEU:HD12	2.41	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:N:251:VAL:HG23	17:N:331:ILE:HG21	1.97	0.46
19:P:243:ILE:HG12	19:P:248:VAL:HG23	1.98	0.46
25:Y:-18:DG:H3'	25:Y:-18:DG:P	2.56	0.46
3:4:192:LEU:O	3:4:196:VAL:HG23	2.16	0.45
4:A:920:GLU:O	4:A:924:VAL:HG23	2.17	0.45
18:O:180:LEU:HD23	20:Q:105:ARG:NH2	2.31	0.45
21:U:297:LYS:CB	21:U:298:PRO:HD3	2.44	0.45
3:4:382:ARG:HB3	3:4:387:LEU:HD13	1.97	0.45
5:B:137:PRO:HG2	5:B:419:ILE:HD12	1.98	0.45
5:B:352:ASP:OD1	5:B:353:ASP:N	2.50	0.45
16:M:235:ASN:ND2	17:N:326:VAL:HG12	2.31	0.45
20:Q:77:THR:HG23	20:Q:77:THR:O	2.16	0.45
24:X:9:DT:H2"	24:X:10:DC:H6	1.80	0.45
18:O:504:ARG:NH1	19:P:314:LEU:O	2.48	0.45
24:X:-36:DT:H3'	24:X:-35:DT:H72	1.98	0.45
4:A:30:GLN:NE2	5:B:1094:TYR:O	2.47	0.45
11:H:9:ILE:N	11:H:9:ILE:HD12	2.32	0.45
18:O:449:ARG:NE	18:O:453:GLU:OE2	2.50	0.45
19:P:45:ILE:O	19:P:50:ARG:NH1	2.49	0.45
24:X:-27:DT:H2"	24:X:-26:DA:O5'	2.16	0.45
25:Y:27:DA:C8	25:Y:28:DT:H71	2.44	0.45
2:3:196:LYS:NZ	24:X:-50:DA:N7	2.63	0.45
3:4:316:GLU:O	3:4:317:TRP:CD1	2.69	0.45
3:4:372:TYR:O	3:4:376:VAL:HG23	2.17	0.45
5:B:287:ILE:O	5:B:291:VAL:HG23	2.17	0.45
6:C:115:ILE:O	6:C:315:VAL:HG13	2.16	0.45
4:A:590:LYS:NZ	11:H:88:PHE:O	2.50	0.45
4:A:809:VAL:HG13	4:A:852:MET:HE1	1.99	0.45
5:B:642:ASN:ND2	5:B:653:ASP:OD1	2.50	0.45
16:M:171:LYS:HG3	19:P:67:ARG:HD3	1.99	0.45
18:O:180:LEU:HD21	20:Q:105:ARG:CZ	2.47	0.45
18:O:491:ILE:HG22	18:O:491:ILE:O	2.16	0.45
24:X:-47:DA:H2"	24:X:-46:DT:C7	2.45	0.45
25:Y:58:DT:C2'	25:Y:59:DA:H5'	2.46	0.45
3:4:357:LEU:O	3:4:361:VAL:HG23	2.16	0.45
4:A:857:GLY:O	4:A:861:THR:HG23	2.16	0.45
17:N:253:GLU:OE2	17:N:256:ARG:NH2	2.49	0.45
18:O:112:LEU:HD11	20:Q:64:LEU:HD22	1.98	0.45
24:X:-33:DG:H1'	24:X:-32:DC:H5'	1.98	0.45
4:A:26:GLU:HG2	19:P:297:HIS:CG	2.52	0.45
4:A:66:ASP:OD1	4:A:67:ARG:N	2.50	0.45

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:590:LYS:HB3	4:A:591:PRO:HD3	1.97	0.45
5:B:86:ASP:O	5:B:135:ARG:NH2	2.48	0.45
5:B:239:ILE:HG22	5:B:243:MET:HE2	1.98	0.45
5:B:883:MET:SD	5:B:883:MET:N	2.89	0.45
6:C:98:THR:O	6:C:98:THR:HG22	2.17	0.45
13:J:30:THR:HG22	13:J:31:GLU:H	1.82	0.45
17:N:254:LEU:HD12	17:N:331:ILE:HD11	1.97	0.45
18:O:104:GLU:OE2	20:Q:56:TYR:OH	2.25	0.45
4:A:233:GLU:OE2	18:O:32:GLY:HA3	2.16	0.45
4:A:631:LEU:HD11	11:H:124:ARG:HD3	1.99	0.45
4:A:731:LEU:HD23	4:A:748:LEU:HD22	1.99	0.45
5:B:181:GLN:OE1	5:B:456:SER:OG	2.33	0.45
5:B:392:ILE:N	5:B:393:PRO:CD	2.80	0.45
24:X:-29:DT:H2'	24:X:-28:DA:N9	2.32	0.45
24:X:19:DA:H2"	24:X:20:DT:C6	2.52	0.45
24:X:19:DA:C2'	24:X:20:DT:H72	2.47	0.45
2:3:108:LYS:HE3	2:3:108:LYS:HB3	1.58	0.44
5:B:208:HIS:O	5:B:208:HIS:ND1	2.50	0.44
25:Y:-24:DG:H2'	25:Y:-23:DT:H72	1.99	0.44
26:Z:2:U:H2'	26:Z:3:G:C8	2.52	0.44
4:A:604:ILE:HG23	4:A:682:ARG:HB2	1.98	0.44
4:A:1254:VAL:HG21	4:A:1266:THR:HG21	1.98	0.44
5:B:91:PHE:O	5:B:93:VAL:HG23	2.17	0.44
10:G:114:LEU:HD23	10:G:114:LEU:H	1.80	0.44
16:M:298:MET:SD	16:M:310:VAL:HG21	2.57	0.44
18:O:515:GLN:OE1	19:P:284:ARG:HD3	2.16	0.44
21:U:169:VAL:HG22	21:U:222:THR:CB	2.47	0.44
5:B:722:THR:HG22	5:B:723:LYS:N	2.33	0.44
5:B:864:SER:OG	5:B:887:GLN:NE2	2.46	0.44
8:E:20:LEU:C	8:E:20:LEU:HD23	2.43	0.44
8:E:29:THR:HG23	8:E:32:GLU:H	1.82	0.44
18:O:507:ASN:HB3	20:Q:58:LEU:HD21	1.98	0.44
24:X:-40:DT:OP2	24:X:-40:DT:H6	1.99	0.44
22:V:280:LEU:HD13	22:V:282:TRP:CZ2	2.52	0.44
22:V:384:ILE:HD12	22:V:385:SER:H	1.83	0.44
24:X:-36:DT:C6	24:X:-35:DT:H72	2.52	0.44
24:X:-1:DC:H2"	24:X:0:DG:O5'	2.18	0.44
25:Y:44:DA:H2"	25:Y:45:DA:N7	2.32	0.44
2:3:99:GLU:O	2:3:103:VAL:HG23	2.18	0.44
4:A:342:VAL:HG13	4:A:1325:ALA:HB2	2.00	0.44
6:C:135:ILE:N	6:C:135:ILE:HD12	2.32	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:M:37:MET:SD	16:M:37:MET:N	2.91	0.44
18:O:442:SER:OG	19:P:287:CYS:HB2	2.17	0.44
19:P:284:ARG:HA	20:Q:46:VAL:O	2.17	0.44
21:U:291:LEU:C	21:U:291:LEU:HD23	2.43	0.44
25:Y:40:DA:H2"	25:Y:41:DT:C6	2.52	0.44
4:A:474:MET:HE1	4:A:539:ILE:HD11	1.98	0.44
4:A:859:VAL:O	4:A:860:ASP:C	2.59	0.44
4:A:1158:LEU:HD12	4:A:1158:LEU:O	2.17	0.44
5:B:390:GLN:NE2	25:Y:12:DC:H5"	2.33	0.44
5:B:714:TYR:O	5:B:737:GLN:NE2	2.51	0.44
6:C:164:VAL:HG22	6:C:165:ASN:OD1	2.18	0.44
18:O:395:LEU:O	18:O:399:LEU:HD13	2.18	0.44
19:P:91:GLN:OE1	19:P:91:GLN:N	2.48	0.44
23:W:310:MET:HE1	23:W:329:PHE:HE1	1.83	0.44
25:Y:57:DT:H2'	25:Y:58:DT:H73	1.99	0.44
4:A:1044:PRO:HG2	4:A:1282:ILE:HD11	2.00	0.44
4:A:1153:ILE:HG21	4:A:1165:VAL:HG21	1.98	0.44
16:M:81:VAL:HG11	16:M:92:TYR:HE2	1.82	0.44
18:O:516:VAL:HG22	19:P:281:GLY:C	2.42	0.44
22:V:201:LEU:HD13	22:V:201:LEU:C	2.43	0.44
24:X:19:DA:H2'	24:X:20:DT:H72	2.00	0.44
25:Y:57:DT:H2"	25:Y:58:DT:C5	2.52	0.44
31:Z:102:GTP:O1B	31:Z:102:GTP:O1G	2.35	0.44
4:A:625:CYS:SG	4:A:626:GLY:N	2.91	0.44
4:A:1140:LEU:CD2	12:I:49:VAL:HG22	2.47	0.44
4:A:1214:ILE:HG22	4:A:1223:TYR:CD1	2.52	0.44
19:P:83:GLY:HA3	19:P:135:LEU:HD12	2.00	0.44
23:W:328:LEU:HD12	23:W:329:PHE:CD1	2.53	0.44
24:X:-38:DT:H2"	24:X:-37:DC:H6	1.83	0.44
25:Y:-18:DG:C2'	25:Y:-17:DT:C6	3.00	0.44
1:1:63:TRP:NE1	1:1:103:ASP:OD2	2.50	0.44
6:C:74:ASN:OD1	6:C:77:ARG:NH2	2.48	0.44
19:P:57:LEU:CD2	19:P:60:MET:HE2	2.48	0.44
4:A:196:SER:HA	18:O:373:LYS:HG3	2.00	0.43
5:B:207:THR:HG23	5:B:209:GLU:H	1.83	0.43
5:B:1079:VAL:HB	5:B:1128:LEU:HD11	2.00	0.43
25:Y:41:DT:H2"	25:Y:42:DC:H5	1.82	0.43
1:1:142:LYS:HB2	1:1:142:LYS:HE2	1.40	0.43
4:A:203:HIS:HB2	18:O:379:GLN:NE2	2.32	0.43
4:A:804:ILE:N	4:A:804:ILE:HD12	2.33	0.43
5:B:252:VAL:HG21	12:I:4:PHE:HZ	1.82	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:G:115:GLN:O	10:G:119:LYS:NZ	2.51	0.43
18:O:276:ILE:HD12	18:O:276:ILE:N	2.33	0.43
18:O:441:LYS:HB3	19:P:293:PHE:HZ	1.83	0.43
24:X:13:DC:H2"	24:X:14:DA:H8	1.83	0.43
25:Y:32:DG:H2"	25:Y:33:DC:C6	2.53	0.43
25:Y:51:DT:H2"	25:Y:52:DT:C6	2.53	0.43
31:Z:102:GTP:H8	31:Z:102:GTP:H5"	1.76	0.43
4:A:591:PRO:O	4:A:592:VAL:HG13	2.18	0.43
6:C:66:VAL:HG22	6:C:305:HIS:CG	2.52	0.43
22:V:101:TYR:OH	24:X:-16:DG:OP2	2.36	0.43
24:X:-22:DC:H6	24:X:-22:DC:H2'	1.66	0.43
22:V:253:LEU:HD13	22:V:253:LEU:C	2.43	0.43
24:X:-21:DT:H2"	24:X:-20:DT:C5	2.53	0.43
2:3:182:LEU:N	2:3:182:LEU:HD12	2.33	0.43
4:A:396:VAL:HG22	4:A:404:LEU:CD1	2.48	0.43
7:D:69:PHE:CE2	7:D:73:LEU:HD11	2.53	0.43
21:U:263:ASP:OD1	21:U:264:VAL:N	2.51	0.43
1:1:96:LYS:HB2	1:1:96:LYS:HE2	1.56	0.43
4:A:471:LEU:HD22	4:A:538:LEU:HD12	2.00	0.43
5:B:796:ASP:O	5:B:800:ARG:N	2.50	0.43
24:X:-48:DT:O4	24:X:-47:DA:C6	2.71	0.43
26:Z:3:G:C8	26:Z:3:G:H5"	2.53	0.43
31:Z:102:GTP:O5'	31:Z:102:GTP:C8	2.68	0.43
1:1:144:LEU:HD13	1:1:144:LEU:HA	1.79	0.43
5:B:471:LEU:HD21	5:B:481:PRO:HB3	2.01	0.43
8:E:75:PHE:CZ	8:E:94:MET:HE3	2.51	0.43
10:G:189:SER:C	10:G:190:ILE:HD12	2.43	0.43
4:A:405:ARG:NH1	4:A:441:ALA:O	2.52	0.43
5:B:93:VAL:HG22	22:V:178:SER:HB3	2.01	0.43
5:B:1028:ARG:NH1	5:B:1072:SER:O	2.52	0.43
6:C:50:ARG:NH1	6:C:52:ASP:OD2	2.51	0.43
6:C:93:LEU:N	6:C:93:LEU:HD12	2.34	0.43
7:D:95:VAL:HG11	10:G:198:LEU:HD22	2.00	0.43
24:X:-57:DA:H2"	24:X:-56:DC:OP2	2.18	0.43
24:X:11:DG:H4'	24:X:12:DG:OP1	2.19	0.43
3:4:177:GLU:N	3:4:177:GLU:OE1	2.52	0.43
4:A:199:THR:CB	18:O:372:LYS:HD2	2.48	0.43
18:O:106:ILE:O	18:O:110:LEU:HD23	2.19	0.43
18:O:118:MET:O	18:O:122:VAL:HG13	2.19	0.43
22:V:381:ASP:OD1	22:V:381:ASP:N	2.45	0.43
4:A:349:GLN:OE1	4:A:349:GLN:N	2.52	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:868:THR:CG2	4:A:1046:THR:HG23	2.44	0.43
10:G:187:VAL:HG13	10:G:188:GLY:N	2.34	0.43
25:Y:-2:DC:H2'	25:Y:-1:DA:C8	2.54	0.43
25:Y:19:DC:H2'	25:Y:20:DA:C8	2.53	0.43
3:4:231:LEU:C	3:4:231:LEU:HD13	2.44	0.42
4:A:366:ARG:HB2	5:B:1045:LEU:HD11	2.01	0.42
5:B:252:VAL:HG21	12:I:4:PHE:CZ	2.54	0.42
7:D:42:LEU:HD11	10:G:31:ASN:HB3	2.01	0.42
18:O:55:CYS:SG	18:O:56:VAL:N	2.91	0.42
18:O:264:SER:O	18:O:267:VAL:HG12	2.19	0.42
24:X:-49:DG:C8	24:X:-48:DT:H72	2.54	0.42
2:3:187:LEU:N	2:3:187:LEU:HD22	2.34	0.42
4:A:196:SER:CA	18:O:373:LYS:HG3	2.49	0.42
19:P:291:PRO:HG3	20:Q:41:THR:CG2	2.50	0.42
23:W:299:TYR:OH	25:Y:36:DA:C4'	2.67	0.42
24:X:17:DA:C2	25:Y:-16:DG:N2	2.87	0.42
25:Y:0:DC:H6	25:Y:0:DC:O5'	2.01	0.42
3:4:324:LEU:HG	3:4:326:THR:HG23	2.02	0.42
6:C:108:HIS:CE1	6:C:112:LEU:HD11	2.54	0.42
6:C:334:ARG:NH2	14:K:104:MET:SD	2.93	0.42
13:J:40:LEU:HD11	13:J:49:LEU:HD12	2.00	0.42
21:U:201:ILE:N	21:U:201:ILE:HD12	2.34	0.42
21:U:288:PHE:CD1	24:X:-30:DT:H1'	2.54	0.42
24:X:-33:DG:H1'	24:X:-32:DC:C6	2.54	0.42
1:1:99:VAL:HG12	1:1:100:ALA:N	2.34	0.42
2:3:343:LEU:CD1	2:3:345:LYS:O	2.52	0.42
4:A:1194:GLU:O	4:A:1198:LYS:NZ	2.53	0.42
8:E:194:ILE:N	8:E:194:ILE:HD12	2.34	0.42
18:O:531:MET:O	18:O:533:ARG:NH1	2.52	0.42
24:X:17:DA:H1'	24:X:18:DC:C6	2.54	0.42
25:Y:-22:DA:H2'	25:Y:-21:DT:H72	2.01	0.42
25:Y:-15:DC:H2"	25:Y:-14:DT:C7	2.50	0.42
4:A:499:ASP:OD1	4:A:499:ASP:N	2.51	0.42
4:A:987:TYR:OH	11:H:102:ASP:N	2.53	0.42
5:B:531:LEU:HD22	5:B:538:LEU:HD21	2.01	0.42
5:B:946:LEU:HD22	5:B:1003:TYR:CZ	2.55	0.42
6:C:239:ILE:HD11	6:C:283:PHE:HE1	1.84	0.42
18:O:90:ARG:HA	20:Q:57:MET:HE3	2.01	0.42
18:O:137:LYS:O	18:O:201:ARG:NH2	2.52	0.42
22:V:153:TYR:O	22:V:157:VAL:HG13	2.20	0.42
4:A:229:ARG:HG2	18:O:437:HIS:CD2	2.55	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:J:10:CYS:SG	13:J:11:GLY:N	2.92	0.42
18:O:17:PHE:O	20:Q:74:PHE:CD1	2.73	0.42
18:O:429:LEU:HD21	18:O:433:ARG:HE	1.84	0.42
18:O:443:ILE:HD12	18:O:520:ILE:HD12	2.02	0.42
24:X:16:DC:H1'	24:X:17:DA:H5'	2.02	0.42
25:Y:48:DA:C2	25:Y:49:DC:C4	3.07	0.42
4:A:233:GLU:OE2	18:O:32:GLY:HA2	2.19	0.42
5:B:478:MET:C	5:B:479:LEU:HD12	2.45	0.42
6:C:245:VAL:HG11	6:C:253:LEU:HD11	2.01	0.42
11:H:51:ASP:N	11:H:54:ASP:OD2	2.49	0.42
19:P:146:LYS:O	25:Y:15:DT:H5'	2.18	0.42
21:U:325:PHE:HA	21:U:328:ILE:HG22	2.02	0.42
23:W:295:ARG:CZ	25:Y:32:DG:H21	2.32	0.42
24:X:-23:DT:C1'	24:X:-22:DC:N4	2.83	0.42
24:X:1:DT:H2"	24:X:2:DG:C8	2.55	0.42
1:1:101:LEU:HD13	1:1:101:LEU:C	2.45	0.42
2:3:340:TYR:N	2:3:341:PRO:HD3	2.08	0.42
3:4:158:GLY:N	3:4:159:PRO:CD	2.83	0.42
4:A:5:GLN:HB2	10:G:185:THR:HG21	2.02	0.42
5:B:702:ARG:NH1	6:C:100:ILE:O	2.47	0.42
16:M:249:LEU:HD12	16:M:249:LEU:C	2.45	0.42
22:V:114:LYS:NZ	24:X:-18:DT:O3'	2.53	0.42
4:A:324:GLU:OE2	4:A:337:TRP:NE1	2.48	0.42
5:B:103:ARG:NH2	5:B:168:TYR:OH	2.53	0.42
16:M:429:LYS:O	16:M:433:VAL:HG23	2.20	0.42
19:P:127:LEU:HD13	19:P:150:TYR:CZ	2.54	0.42
24:X:-22:DC:H2"	24:X:-21:DT:C4	2.54	0.42
25:Y:27:DA:H2"	25:Y:28:DT:C2'	2.49	0.42
3:4:193:ARG:O	3:4:197:VAL:HG23	2.20	0.42
4:A:257:VAL:HG23	4:A:283:LEU:CD1	2.50	0.42
4:A:570:SER:HB2	4:A:689:VAL:HG21	2.01	0.42
6:C:57:ASP:N	6:C:57:ASP:OD1	2.52	0.42
22:V:49:ASN:O	22:V:51:ARG:NH1	2.53	0.42
24:X:15:DG:H4'	24:X:16:DC:OP1	2.18	0.42
25:Y:-20:DA:H2'	25:Y:-19:DT:H72	2.02	0.42
25:Y:41:DT:H2"	25:Y:42:DC:C6	2.55	0.42
1:1:7:LEU:HD11	1:1:54:PHE:CE2	2.55	0.41
2:3:260:ASN:ND2	2:3:269:ASP:OD1	2.53	0.41
4:A:76:LEU:C	4:A:76:LEU:HD23	2.45	0.41
5:B:521:GLU:OE2	17:N:384:VAL:HG21	2.20	0.41
7:D:11:LEU:HD23	7:D:11:LEU:H	1.85	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:V:114:LYS:HZ3	24:X:-17:DG:P	2.42	0.41
24:X:10:DC:H2'	24:X:11:DG:H8	1.85	0.41
25:Y:-17:DT:H2"	25:Y:-16:DG:C8	2.55	0.41
25:Y:0:DC:C3'	25:Y:1:DG:H5"	2.49	0.41
4:A:1188:VAL:HG22	4:A:1188:VAL:O	2.19	0.41
18:O:36:LEU:HD23	18:O:36:LEU:C	2.45	0.41
4:A:130:LYS:CE	18:O:34:GLN:HE21	2.31	0.41
8:E:105:VAL:HG13	8:E:135:LEU:HD12	2.02	0.41
10:G:190:ILE:HD12	10:G:190:ILE:N	2.35	0.41
22:V:208:VAL:HG11	22:V:226:ILE:HD12	2.02	0.41
24:X:-17:DG:O5'	24:X:-17:DG:H8	2.03	0.41
25:Y:19:DC:OP2	25:Y:19:DC:H6	2.03	0.41
3:4:393:LYS:O	3:4:394:SER:OG	2.36	0.41
8:E:35:GLN:NE2	8:E:39:GLU:OE1	2.53	0.41
24:X:-26:DA:H2"	24:X:-25:DT:H71	2.02	0.41
24:X:12:DG:H2"	24:X:13:DC:C5	2.55	0.41
24:X:24:DC:H2"	24:X:25:DT:C7	2.50	0.41
25:Y:1:DG:N1	31:Z:102:GTP:C6	2.88	0.41
4:A:203:HIS:NE2	18:O:383:PHE:HE2	2.15	0.41
17:N:330:LEU:N	17:N:330:LEU:HD12	2.35	0.41
18:O:180:LEU:CD2	20:Q:105:ARG:NH2	2.84	0.41
23:W:298:TYR:O	23:W:299:TYR:C	2.63	0.41
24:X:-40:DT:H2'	24:X:-39:DT:C7	2.50	0.41
25:Y:-11:DC:H2"	25:Y:-10:DG:N7	2.35	0.41
25:Y:56:DG:H2"	25:Y:57:DT:C6	2.56	0.41
25:Y:56:DG:H2"	25:Y:57:DT:H6	1.85	0.41
6:C:287:ILE:HD11	6:C:293:LEU:HB3	2.03	0.41
10:G:158:VAL:HG23	10:G:159:ASP:N	2.36	0.41
18:O:292:GLU:HA	18:O:295:ARG:HG2	2.03	0.41
18:O:516:VAL:HG22	19:P:282:LEU:HA	2.02	0.41
19:P:243:ILE:HD11	19:P:250:MET:HB2	2.02	0.41
4:A:568:ILE:HG21	4:A:581:VAL:HG13	2.02	0.41
4:A:947:LEU:C	4:A:947:LEU:HD23	2.45	0.41
16:M:11:GLN:CB	17:N:331:ILE:HD12	2.50	0.41
2:3:155:PHE:HA	3:4:366:VAL:HG12	2.02	0.41
4:A:214:ALA:CB	18:O:407:GLN:NE2	2.72	0.41
4:A:520:LEU:HD23	9:F:90:LEU:HD21	2.03	0.41
5:B:746:TYR:O	5:B:747:SER:OG	2.31	0.41
6:C:28:ASP:O	14:K:61:LYS:NZ	2.54	0.41
8:E:60:VAL:HG22	8:E:60:VAL:O	2.21	0.41
24:X:-49:DG:H2"	24:X:-48:DT:H2'	2.02	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
26:Z:4:C:C6	26:Z:4:C:C3'	3.04	0.41
4:A:654:THR:O	4:A:662:ASN:ND2	2.54	0.41
4:A:1153:ILE:HG22	4:A:1154:CYS:N	2.36	0.41
5:B:122:GLY:O	5:B:123:SER:OG	2.18	0.41
5:B:235:PRO:HD2	5:B:238:ILE:HD12	2.03	0.41
10:G:59:VAL:O	10:G:59:VAL:HG13	2.19	0.41
16:M:77:ILE:O	16:M:81:VAL:HG12	2.21	0.41
18:O:413:PRO:O	18:O:415:HIS:ND1	2.50	0.41
19:P:243:ILE:CG1	19:P:248:VAL:HG23	2.51	0.41
21:U:297:LYS:HE2	21:U:297:LYS:HB3	1.18	0.41
24:X:1:DT:H2"	24:X:2:DG:C5'	2.45	0.41
24:X:22:DT:H2"	24:X:23:DA:N7	2.34	0.41
25:Y:31:DA:H2"	25:Y:32:DG:C8	2.56	0.41
2:3:203:THR:H	2:3:343:LEU:HD11	1.85	0.41
4:A:466:PRO:HD3	25:Y:-3:DG:H21	1.85	0.41
4:A:1129:LEU:C	4:A:1129:LEU:HD23	2.46	0.41
6:C:299:LEU:HD12	6:C:299:LEU:N	2.36	0.41
13:J:3:ILE:HD12	13:J:4:PRO:HD2	2.03	0.41
16:M:17:LEU:HD23	16:M:18:ALA:N	2.36	0.41
21:U:171:THR:HG23	21:U:256:GLN:HG3	2.02	0.41
21:U:302:LEU:N	21:U:302:LEU:HD12	2.37	0.41
23:W:310:MET:HE1	23:W:329:PHE:CE1	2.55	0.41
25:Y:27:DA:N7	25:Y:28:DT:C7	2.83	0.41
4:A:454:LEU:C	4:A:454:LEU:HD23	2.46	0.40
7:D:25:GLU:HA	7:D:28:LYS:HG2	2.03	0.40
14:K:55:LEU:O	14:K:59:ILE:HG22	2.21	0.40
19:P:161:VAL:HG23	19:P:162:THR:HG22	2.03	0.40
19:P:284:ARG:NH2	20:Q:49:LYS:HG2	2.36	0.40
25:Y:16:DC:H2"	25:Y:17:DC:C6	2.55	0.40
25:Y:17:DC:H2"	25:Y:18:DA:C8	2.56	0.40
3:4:301:GLU:CG	3:4:326:THR:HG21	2.52	0.40
3:4:305:LEU:HD23	3:4:305:LEU:C	2.46	0.40
4:A:731:LEU:HD22	4:A:748:LEU:HD22	2.03	0.40
15:L:26:ASN:ND2	15:L:36:CYS:SG	2.90	0.40
19:P:42:MET:HE2	19:P:44:HIS:HB2	2.02	0.40
19:P:141:SER:OG	19:P:144:ALA:O	2.33	0.40
21:U:197:PHE:CD2	25:Y:25:DA:C8	3.10	0.40
25:Y:57:DT:C2'	25:Y:58:DT:C5	3.04	0.40
1:1:130:ARG:O	1:1:133:ARG:NH2	2.54	0.40
4:A:599:GLN:O	4:A:603:VAL:HG23	2.21	0.40
4:A:870:TYR:CE1	25:Y:-5:DT:H5'	2.55	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:G:155:GLU:OE1	10:G:155:GLU:N	2.55	0.40
11:H:27:ARG:HD2	11:H:40:ILE:HG22	2.03	0.40
18:O:143:GLU:O	18:O:147:THR:HG23	2.22	0.40
18:O:502:LEU:O	18:O:506:VAL:HG23	2.21	0.40
26:Z:2:U:P	31:Z:102:GTP:H2'	2.62	0.40
1:1:24:VAL:O	1:1:24:VAL:HG23	2.20	0.40
2:3:148:ARG:HE	2:3:148:ARG:HA	1.87	0.40
4:A:295:LYS:HD2	20:Q:28:PRO:HA	2.04	0.40
4:A:366:ARG:NE	25:Y:-1:DA:H4'	2.36	0.40
4:A:860:ASP:O	4:A:861:THR:C	2.60	0.40
4:A:912:MET:HE2	4:A:1285:ARG:HH12	1.86	0.40
5:B:578:LEU:HD12	5:B:578:LEU:N	2.37	0.40
23:W:363:ASP:OD1	23:W:364:PHE:N	2.55	0.40
25:Y:19:DC:H2"	25:Y:20:DA:O5'	2.21	0.40
4:A:1058:VAL:HG23	4:A:1060:SER:H	1.85	0.40
18:O:159:ARG:NH1	18:O:186:ASP:OD2	2.54	0.40
24:X:-41:DA:C2'	24:X:-40:DT:H71	2.47	0.40
25:Y:-2:DC:H4'	25:Y:-2:DC:OP1	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	1	141/368 (38%)	128 (91%)	13 (9%)	0	100	100
2	3	368/411 (90%)	354 (96%)	14 (4%)	0	100	100
3	4	245/1469 (17%)	237 (97%)	8 (3%)	0	100	100
4	A	1376/1390 (99%)	1337 (97%)	39 (3%)	0	100	100
5	B	1091/1133 (96%)	1066 (98%)	25 (2%)	0	100	100
6	C	341/346 (99%)	337 (99%)	4 (1%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	D	120/148 (81%)	118 (98%)	2 (2%)	0	100	100
8	E	207/210 (99%)	204 (99%)	3 (1%)	0	100	100
9	F	74/127 (58%)	70 (95%)	4 (5%)	0	100	100
10	G	160/204 (78%)	149 (93%)	11 (7%)	0	100	100
11	H	146/150 (97%)	146 (100%)	0	0	100	100
12	I	52/108 (48%)	52 (100%)	0	0	100	100
13	J	63/67 (94%)	59 (94%)	4 (6%)	0	100	100
14	K	101/133 (76%)	98 (97%)	3 (3%)	0	100	100
15	L	44/58 (76%)	41 (93%)	3 (7%)	0	100	100
16	M	418/708 (59%)	402 (96%)	16 (4%)	0	100	100
17	N	140/398 (35%)	140 (100%)	0	0	100	100
18	O	508/534 (95%)	496 (98%)	12 (2%)	0	100	100
19	P	301/316 (95%)	292 (97%)	9 (3%)	0	100	100
20	Q	85/223 (38%)	83 (98%)	2 (2%)	0	100	100
21	U	177/339 (52%)	174 (98%)	3 (2%)	0	100	100
22	V	358/419 (85%)	347 (97%)	11 (3%)	0	100	100
23	W	109/2624 (4%)	102 (94%)	7 (6%)	0	100	100
All	All	6625/11883 (56%)	6432 (97%)	193 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	1	129/334 (39%)	118 (92%)	11 (8%)	8	32
2	3	330/356 (93%)	317 (96%)	13 (4%)	27	56
3	4	221/1213 (18%)	217 (98%)	4 (2%)	54	74
4	A	1200/1212 (99%)	1191 (99%)	9 (1%)	79	88

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
5	B	959/988 (97%)	958 (100%)	1 (0%)	92 97
6	C	299/302 (99%)	299 (100%)	0	100 100
7	D	114/136 (84%)	114 (100%)	0	100 100
8	E	191/192 (100%)	191 (100%)	0	100 100
9	F	66/111 (60%)	66 (100%)	0	100 100
10	G	149/181 (82%)	148 (99%)	1 (1%)	81 89
11	H	129/131 (98%)	129 (100%)	0	100 100
12	I	48/93 (52%)	48 (100%)	0	100 100
13	J	53/56 (95%)	53 (100%)	0	100 100
14	K	92/119 (77%)	92 (100%)	0	100 100
15	L	43/55 (78%)	43 (100%)	0	100 100
16	M	377/622 (61%)	377 (100%)	0	100 100
17	N	131/347 (38%)	131 (100%)	0	100 100
18	O	458/476 (96%)	457 (100%)	1 (0%)	92 97
19	P	269/280 (96%)	269 (100%)	0	100 100
20	Q	84/195 (43%)	84 (100%)	0	100 100
21	U	154/293 (53%)	148 (96%)	6 (4%)	27 56
22	V	325/365 (89%)	316 (97%)	9 (3%)	38 65
23	W	102/2381 (4%)	98 (96%)	4 (4%)	27 56
All	All	5923/10438 (57%)	5864 (99%)	59 (1%)	71 84

All (59) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	1	25	ARG
1	1	34	ARG
1	1	45	ARG
1	1	46	MET
1	1	95	GLN
1	1	96	LYS
1	1	102	LYS
1	1	137	PHE
1	1	142	LYS
1	1	143	LEU
1	1	144	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	3	55	LEU
2	3	56	ARG
2	3	61	LEU
2	3	108	LYS
2	3	110	LYS
2	3	130	LEU
2	3	146	ILE
2	3	339	LEU
2	3	340	TYR
2	3	342	LEU
2	3	343	LEU
2	3	375	ASP
2	3	377	CYS
3	4	151	LYS
3	4	246	ASN
3	4	359	GLN
3	4	387	LEU
4	A	428	MET
4	A	494	THR
4	A	767	CYS
4	A	776	SER
4	A	855	ARG
4	A	856	GLU
4	A	858	LEU
4	A	861	THR
4	A	1007	THR
5	B	680	SER
10	G	128	VAL
18	O	55	CYS
21	U	202	MET
21	U	205	ARG
21	U	296	ILE
21	U	297	LYS
21	U	299	ARG
21	U	323	GLU
22	V	73	LEU
22	V	115	GLU
22	V	120	CYS
22	V	128	GLN
22	V	243	LEU
22	V	247	LEU
22	V	357	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
22	V	367	LYS
22	V	384	ILE
23	W	289	THR
23	W	301	LYS
23	W	351	ARG
23	W	357	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (55) such sidechains are listed below:

Mol	Chain	Res	Type
1	1	111	GLN
1	1	112	GLN
1	1	116	ASN
1	1	118	GLN
2	3	28	ASN
2	3	162	HIS
2	3	195	HIS
2	3	210	GLN
2	3	214	GLN
3	4	171	GLN
3	4	234	GLN
3	4	268	ASN
3	4	295	GLN
4	A	17	HIS
4	A	48	HIS
4	A	82	HIS
4	A	296	HIS
4	A	374	ASN
4	A	415	HIS
4	A	423	GLN
4	A	739	GLN
4	A	1054	HIS
4	A	1213	HIS
4	A	1278	HIS
4	A	1371	ASN
5	B	100	HIS
5	B	273	GLN
5	B	395	GLN
5	B	552	HIS
5	B	785	GLN
5	B	1093	HIS
8	E	108	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
8	E	129	GLN
8	E	132	GLN
11	H	29	HIS
11	H	131	ASN
12	I	32	HIS
16	M	266	ASN
16	M	281	GLN
18	O	27	HIS
18	O	34	GLN
18	O	68	HIS
18	O	249	GLN
18	O	377	GLN
18	O	402	ASN
18	O	407	GLN
18	O	437	HIS
19	P	297	HIS
21	U	164	GLN
21	U	166	GLN
22	V	49	ASN
22	V	235	GLN
22	V	406	GLN
23	W	357	GLN
23	W	383	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
26	Z	2/3 (66%)	1 (50%)	0

All (1) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
26	Z	4	C

There are no RNA pucker outliers to report.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 11 ligands modelled in this entry, 8 are monoatomic - leaving 3 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	$\#\|Z\| > 2$
31	GTP	Z	102	-	26,34,34	1.43	4 (15%)	32,54,54	2.65	8 (25%)
29	SF4	P	401	19	0,12,12	-	-	-		
28	3AT	B	1202	-	25,32,32	0.98	1 (4%)	28,50,50	1.62	5 (17%)

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
31	GTP	Z	102	-	-	2/18/38/38	0/3/3/3
29	SF4	P	401	19	-	-	0/6/5/5
28	3AT	B	1202	-	-	6/18/34/34	0/3/3/3

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
31	Z	102	GTP	C3'-C4'	3.71	1.62	1.53
31	Z	102	GTP	C5-C6	-2.81	1.41	1.47
31	Z	102	GTP	O4'-C1'	2.70	1.44	1.41
31	Z	102	GTP	C8-N7	-2.66	1.30	1.35
28	B	1202	3AT	C5-C4	2.51	1.47	1.40

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	Z	102	GTP	O4'-C4'-C5'	7.64	134.50	109.37
31	Z	102	GTP	PA-O3A-PB	-7.58	106.81	132.83
31	Z	102	GTP	PB-O3B-PG	-7.53	106.97	132.83
28	B	1202	3AT	PA-O3A-PB	-3.62	120.40	132.83
28	B	1202	3AT	PB-O3B-PG	-3.61	120.42	132.83
31	Z	102	GTP	C8-N7-C5	3.34	109.36	102.99
28	B	1202	3AT	N3-C2-N1	-3.14	123.77	128.68
28	B	1202	3AT	C4-C5-N7	-2.71	106.58	109.40
31	Z	102	GTP	C2-N1-C6	-2.62	120.28	125.10
31	Z	102	GTP	PA-O5'-C5'	-2.54	106.79	121.68
31	Z	102	GTP	C5-C6-N1	2.48	118.33	113.95
28	B	1202	3AT	O4'-C4'-C3'	2.12	107.80	105.07
31	Z	102	GTP	C3'-C2'-C1'	2.03	104.03	100.98

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
28	B	1202	3AT	C5'-O5'-PA-O3A
28	B	1202	3AT	O4'-C4'-C5'-O5'
28	B	1202	3AT	C3'-C4'-C5'-O5'
31	Z	102	GTP	O4'-C4'-C5'-O5'
31	Z	102	GTP	C3'-C4'-C5'-O5'
28	B	1202	3AT	C5'-O5'-PA-O2A
28	B	1202	3AT	PG-O3B-PB-O2B
28	B	1202	3AT	PG-O3B-PB-O1B

There are no ring outliers.

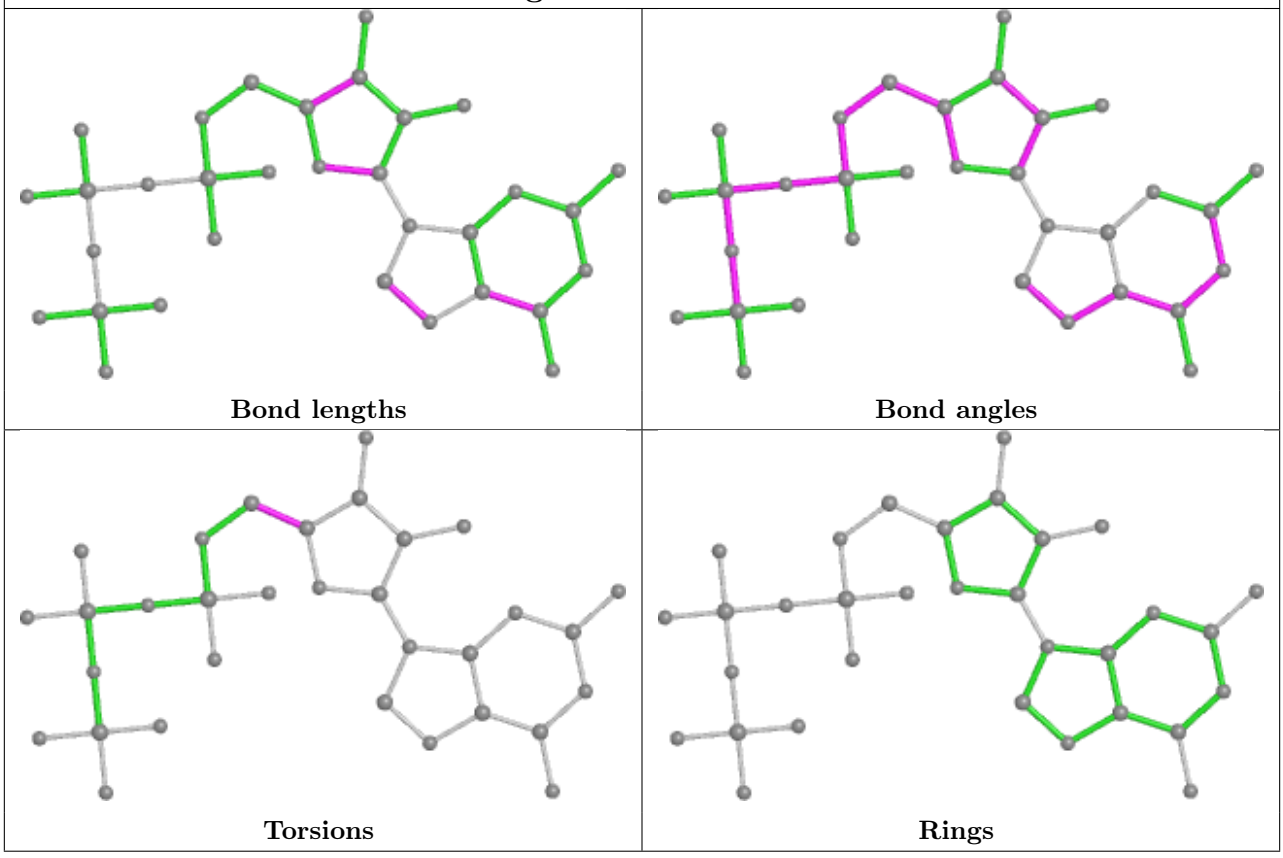
3 monomers are involved in 27 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
31	Z	102	GTP	21	0
29	P	401	SF4	2	0
28	B	1202	3AT	4	0

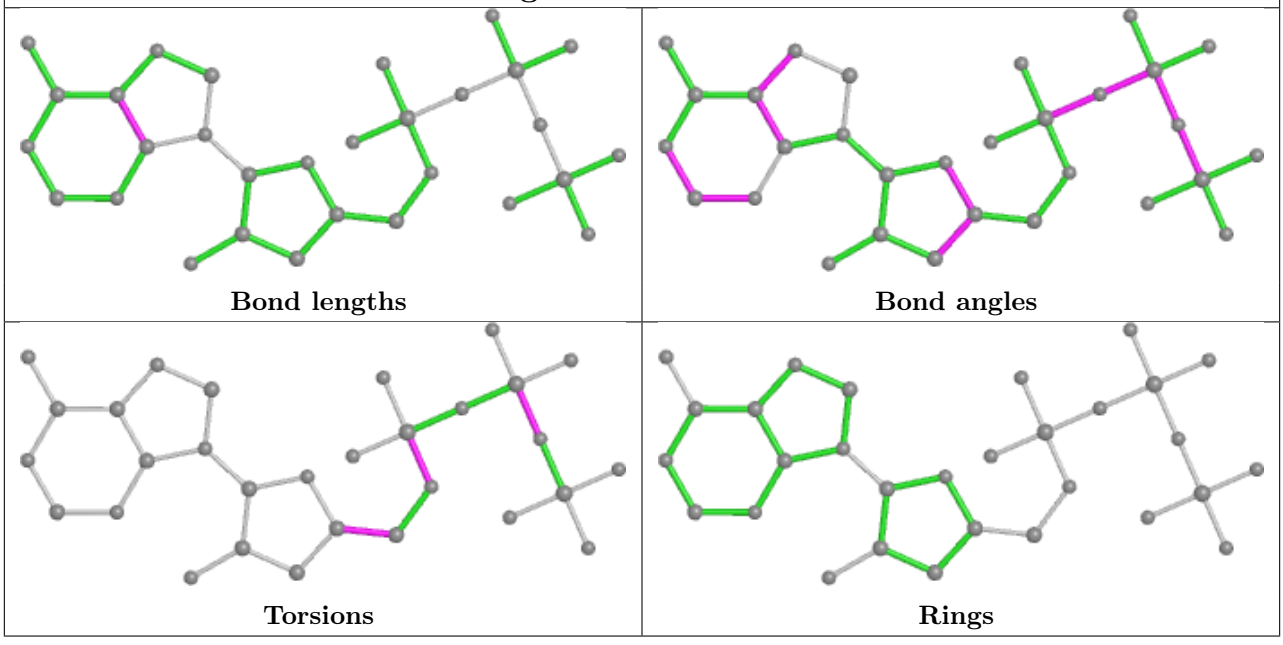
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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 Z 102



Ligand 3AT B 1202



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.

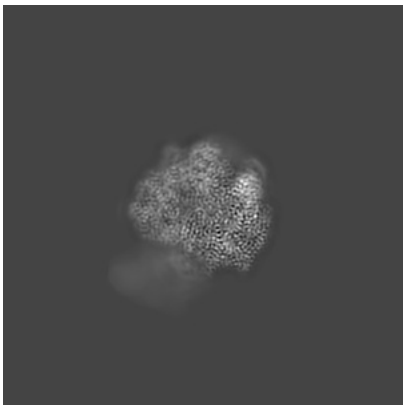
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62030. These allow visual inspection of the internal detail of the map and identification of artifacts.

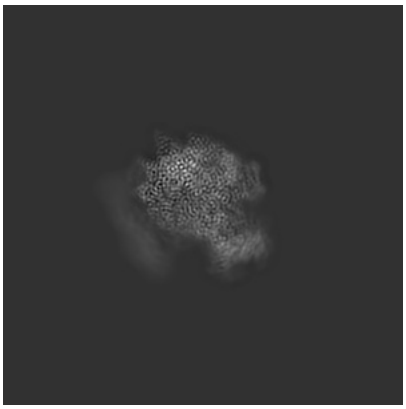
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

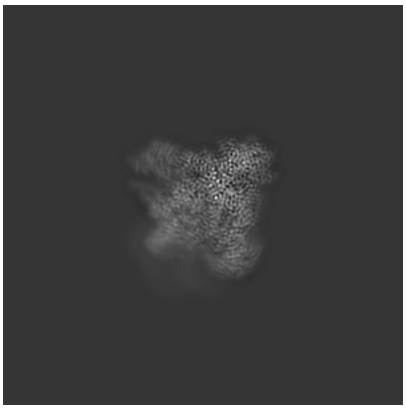
6.1.1 Primary map



X

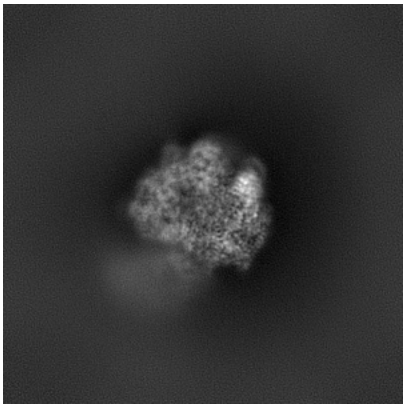


Y

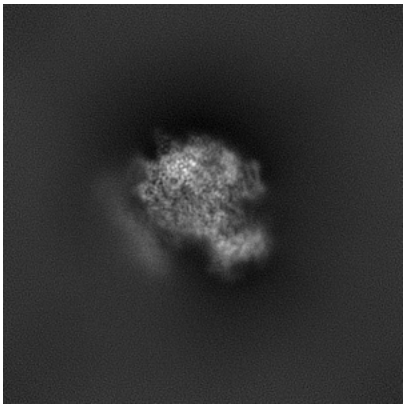


Z

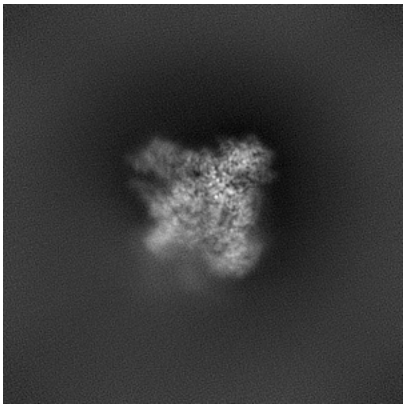
6.1.2 Raw map



X



Y

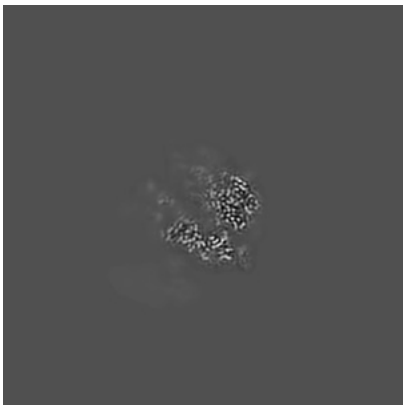


Z

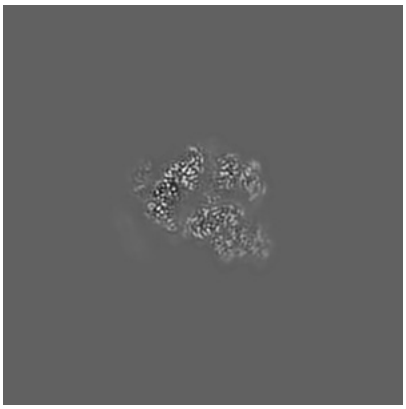
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

6.2.1 Primary map



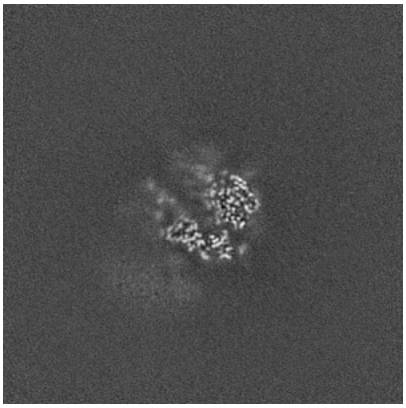
X Index: 161



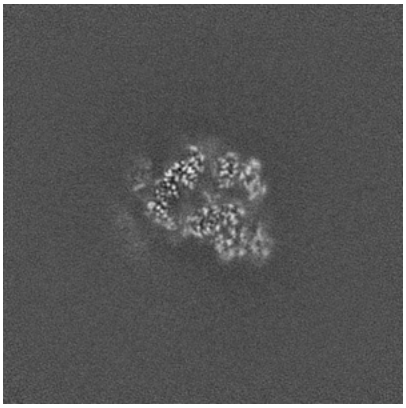
Y Index: 161

Z Index: 161

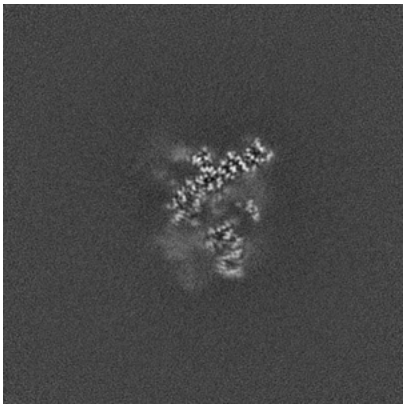
6.2.2 Raw map



X Index: 161



Y Index: 161

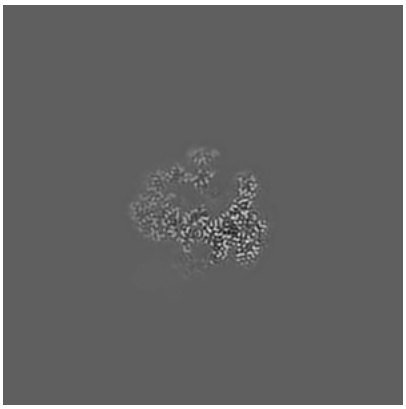


Z Index: 161

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

6.3 Largest variance slices (i)

6.3.1 Primary map

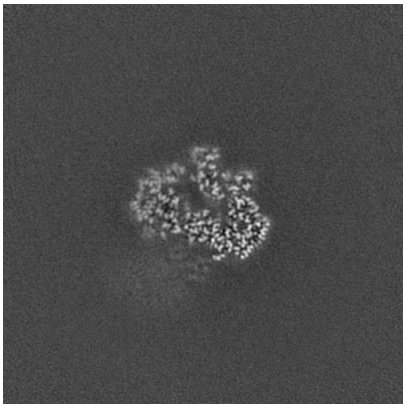


X Index: 189

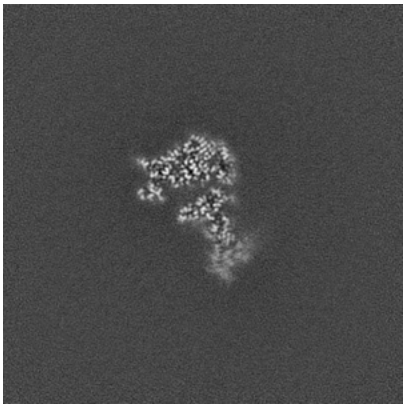
Y Index: 190

Z Index: 136

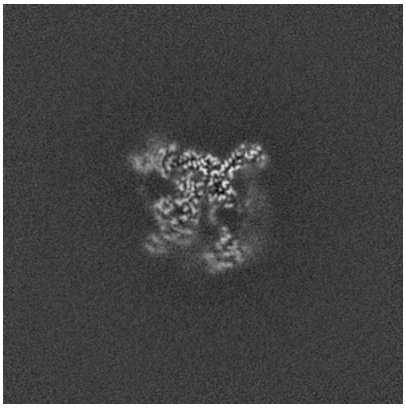
6.3.2 Raw map



X Index: 183



Y Index: 196

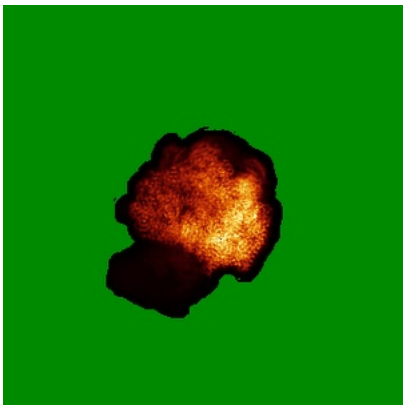


Z Index: 173

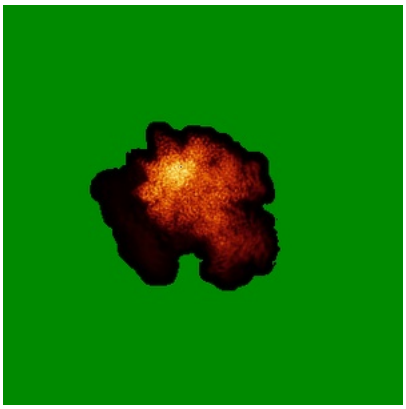
The images above show the largest variance slices of the map in three orthogonal directions.

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

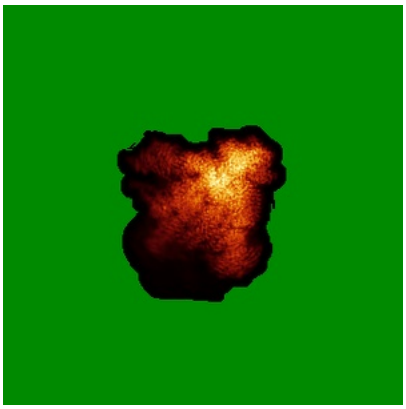
6.4.1 Primary map



X

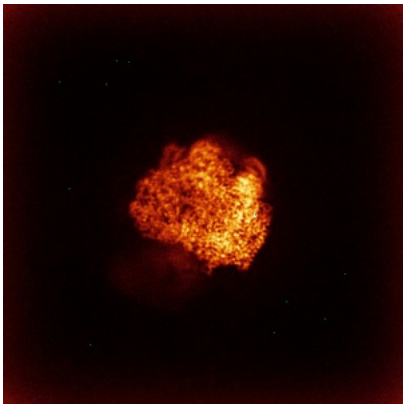


Y

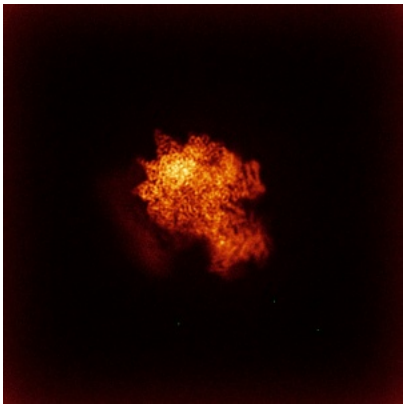


Z

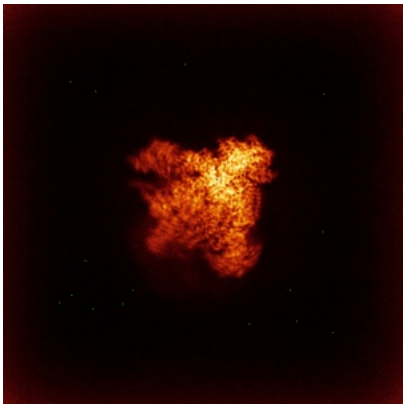
6.4.2 Raw map



X



Y

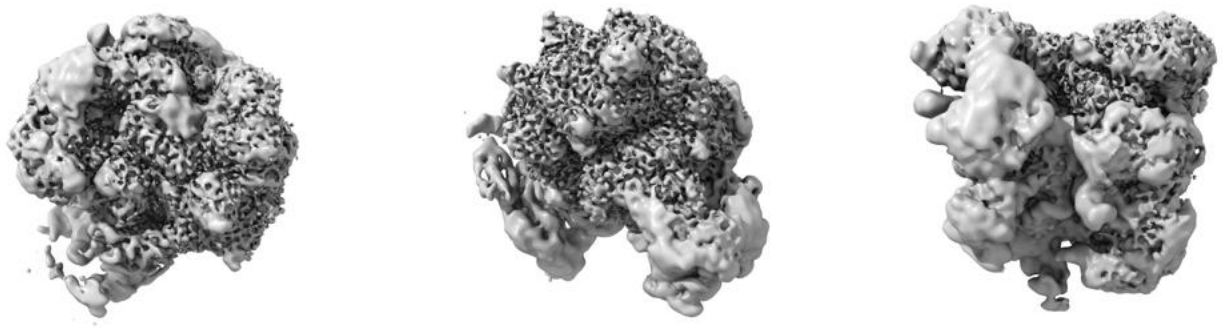


Z

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

6.5 Orthogonal surface views (i)

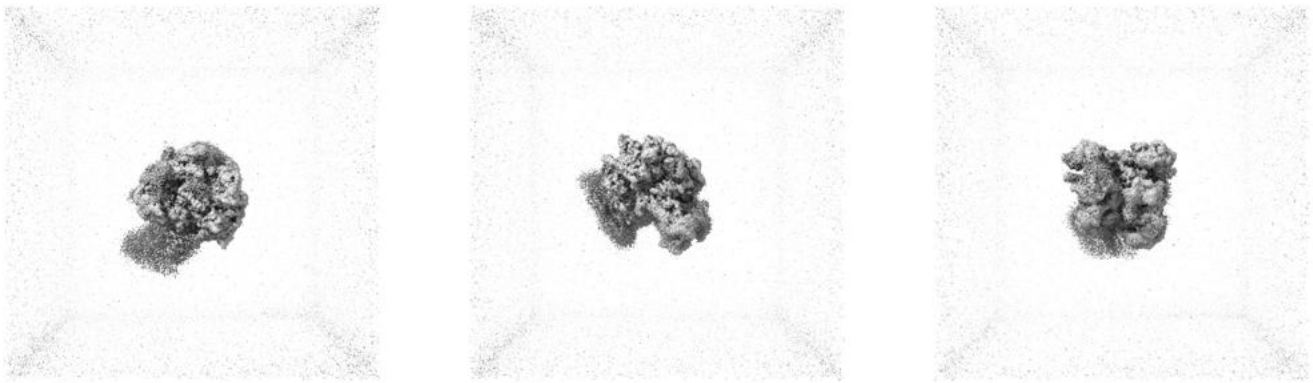
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.143. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

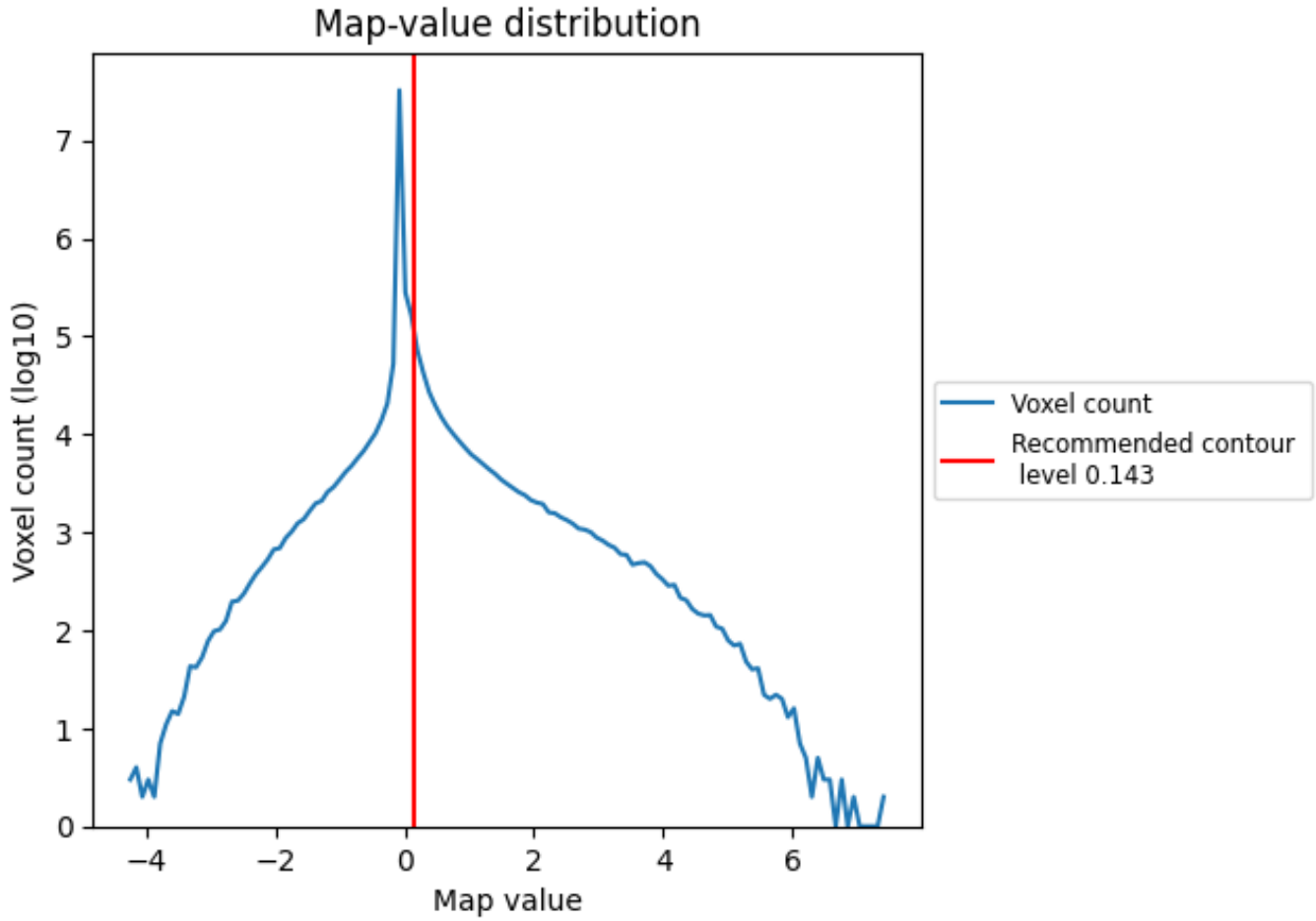
6.6 Mask visualisation (i)

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

7 Map analysis

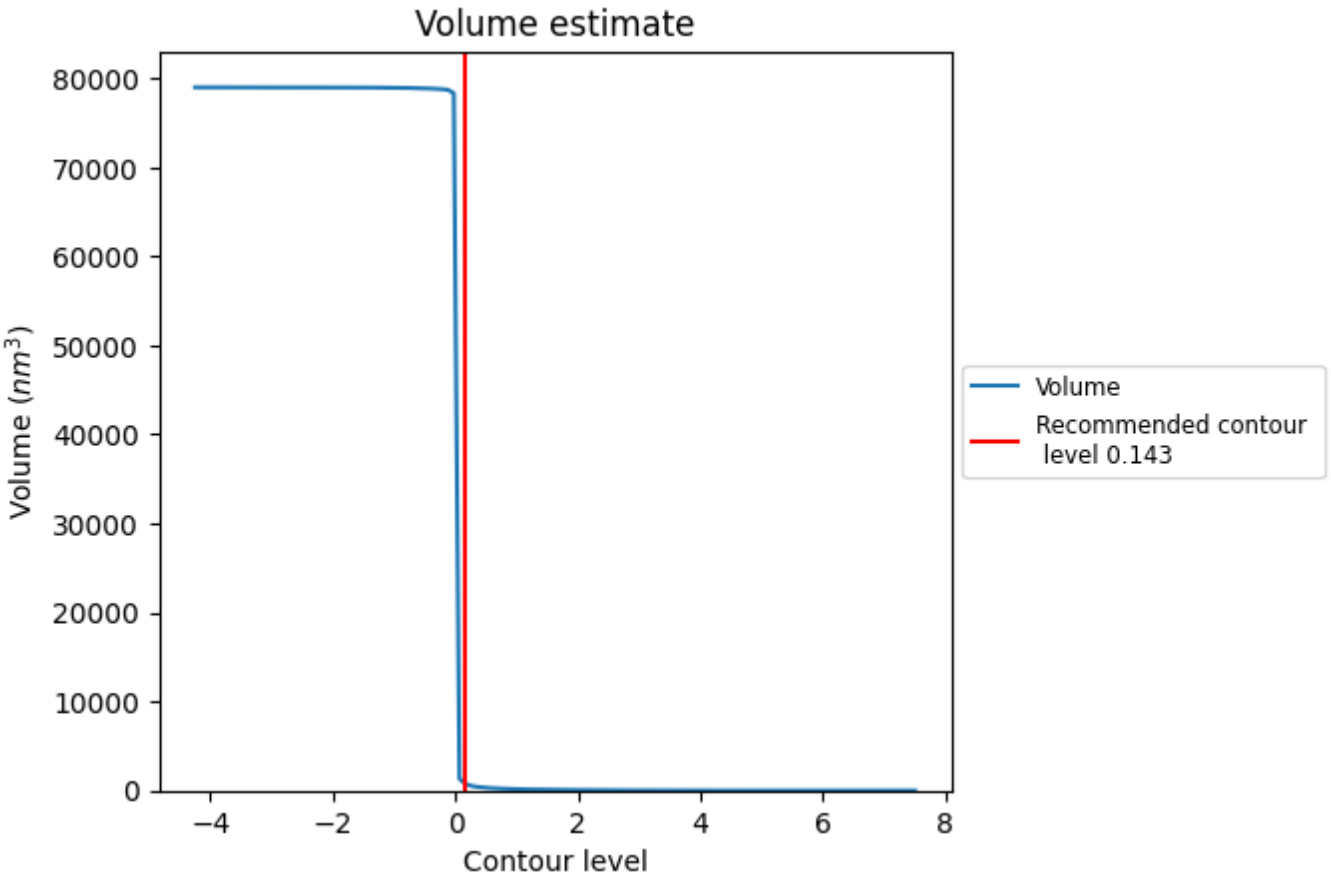
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

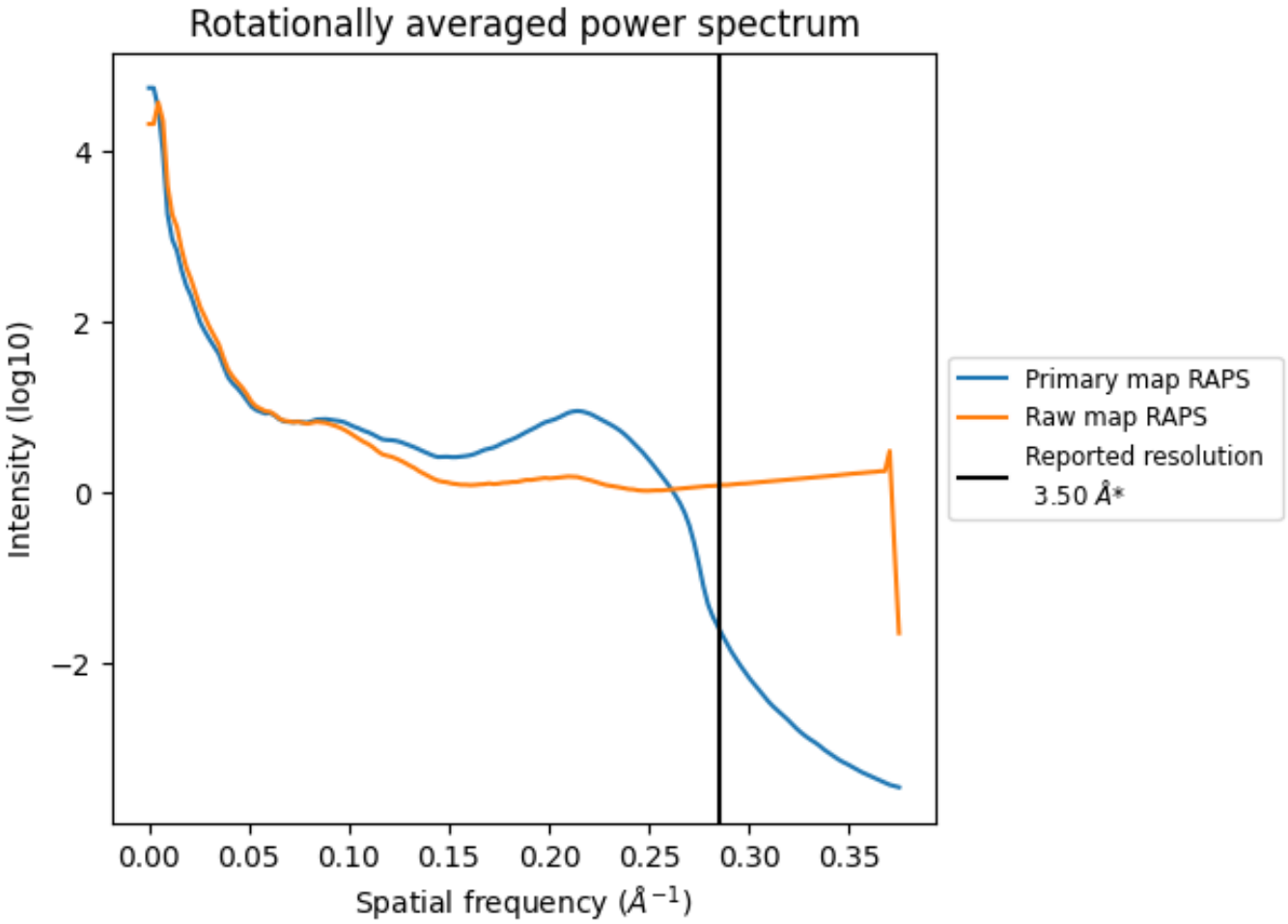
7.2 Volume estimate



The volume at the recommended contour level is 867 nm^3; this corresponds to an approximate mass of 783 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)

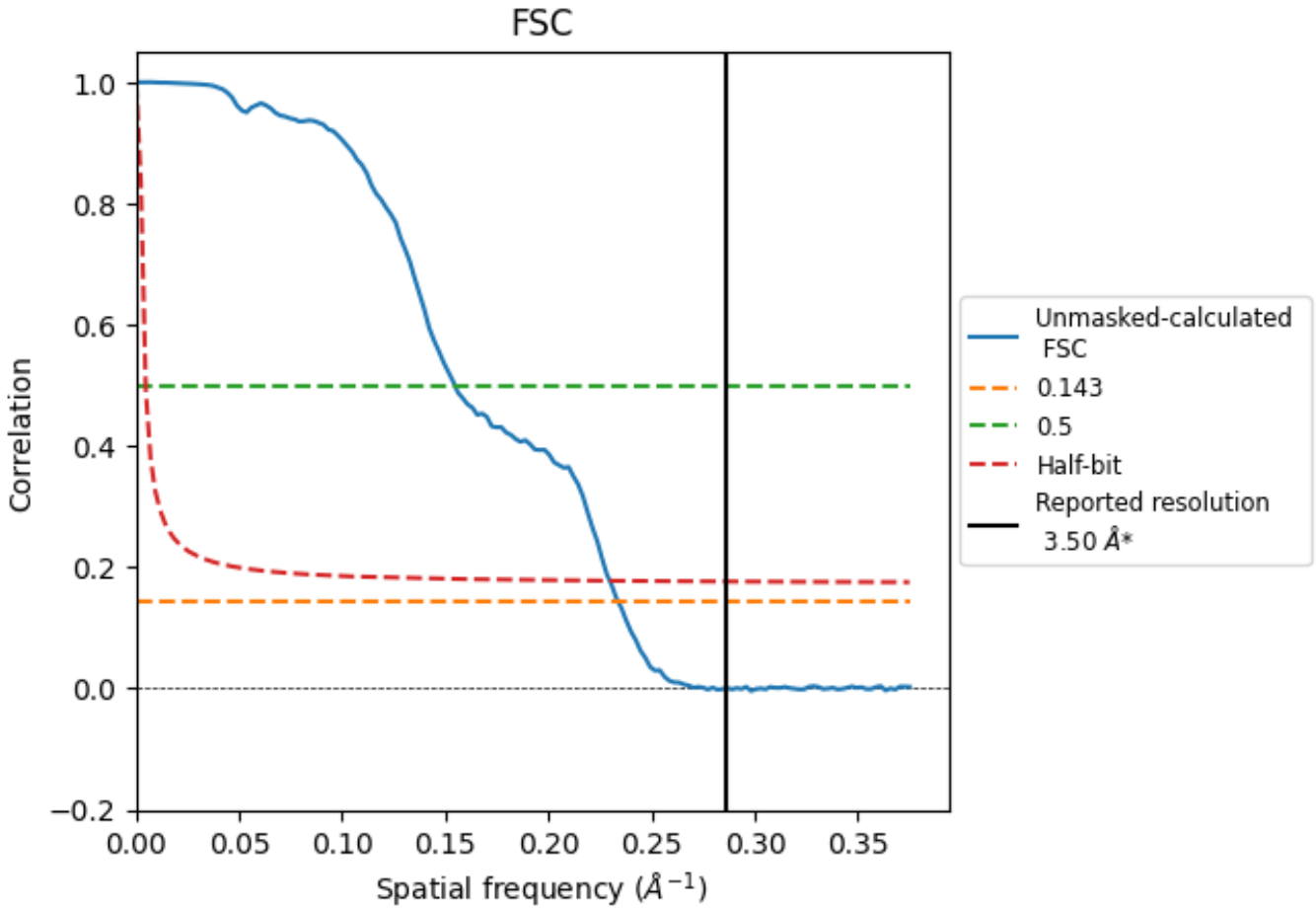


*Reported resolution corresponds to spatial frequency of 0.286 Å^{-1}

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 0.286 Å^{-1}

8.2 Resolution estimates (i)

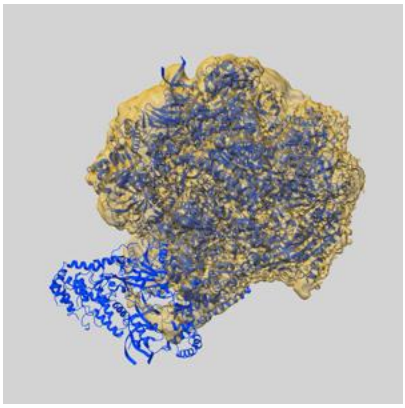
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.28	6.47	4.35

*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 4.28 differs from the reported value 3.5 by more than 10 %

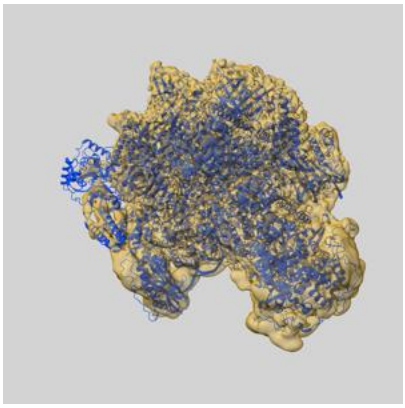
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62030 and PDB model 9K3V. Per-residue inclusion information can be found in section 3 on page 12.

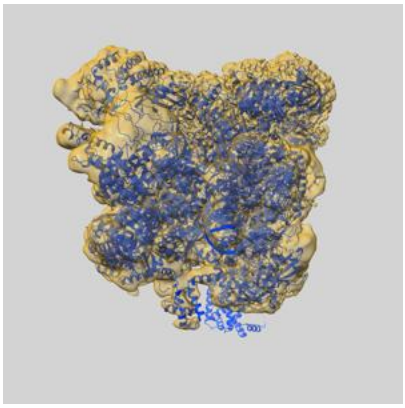
9.1 Map-model overlay



X



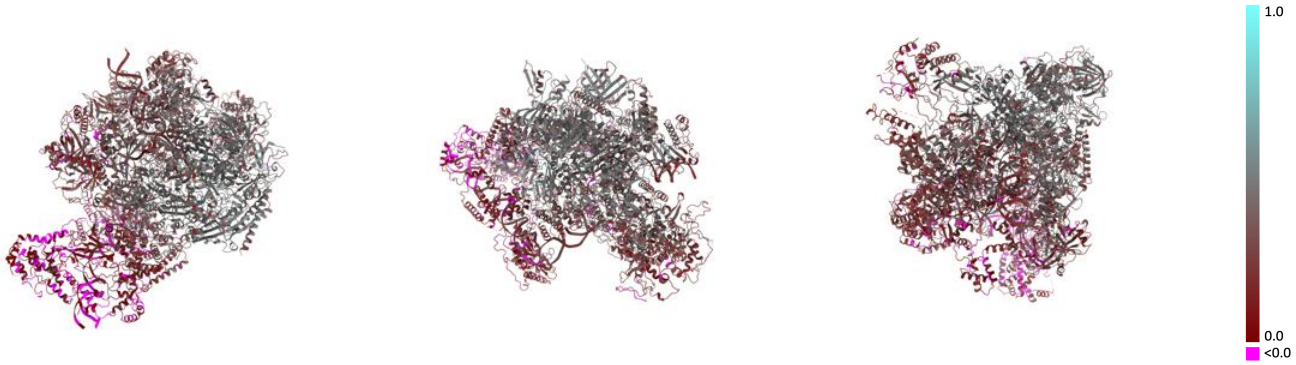
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.143 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

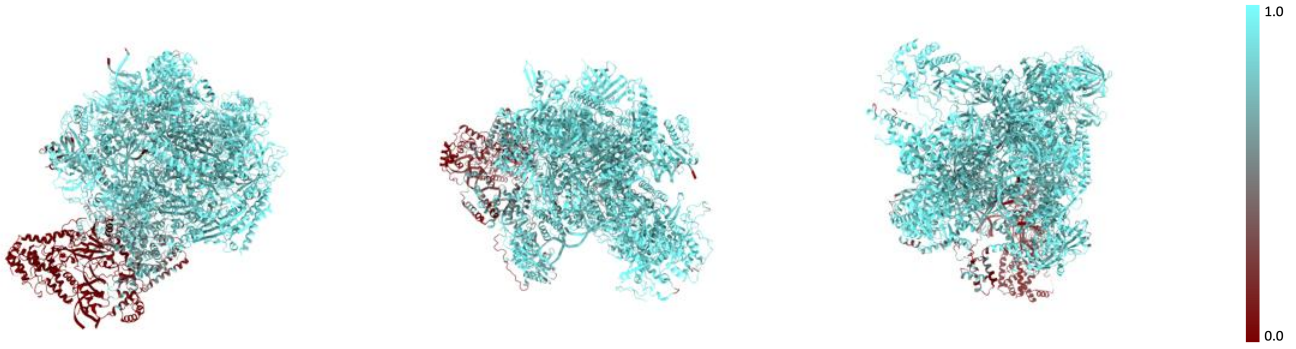
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

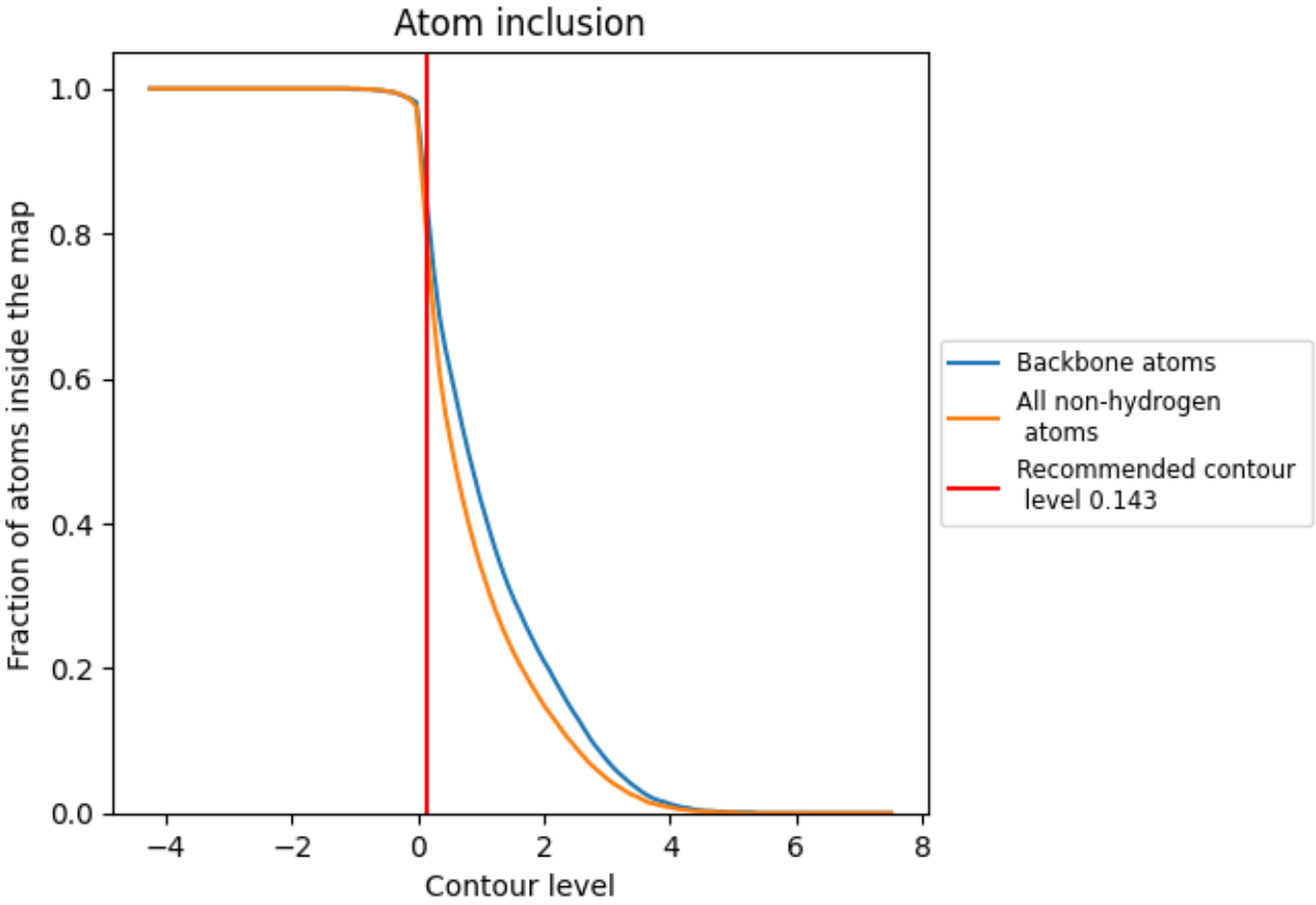
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.143).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 79% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.143) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7940	0.2960
1	0.0000	0.0370
3	0.0520	0.0420
4	0.2230	0.0680
A	0.9190	0.3960
B	0.9150	0.4150
C	0.9320	0.4460
D	0.9560	0.2300
E	0.9500	0.3520
F	0.9360	0.4430
G	0.9390	0.3150
H	0.9270	0.4290
I	0.9450	0.3450
J	0.9200	0.4250
K	0.9180	0.4290
L	0.9460	0.3930
M	0.7730	0.2580
N	0.9060	0.2350
O	0.9380	0.2960
P	0.8340	0.1930
Q	0.9520	0.2890
U	0.8730	0.1280
V	0.7560	0.2110
W	0.7450	0.1060
X	0.6580	0.1440
Y	0.7120	0.1830
Z	0.7190	0.2930