Full wwPDB EM Validation Report ⓘ

Jan 7, 2025 – 12:48 pm GMT

PDB ID	:	9FSQ
EMDB ID	:	EMD-50732
Title	:	RNA Polymerase III Class III Melting Pre-Initiation Complex (MC)
Authors	:	Shah, S.Z.; Ramsay, E.P.; Cecatiello, V.; Perry, T.N.; Vannini, A.
Deposited on	:	2024-06-21
Resolution	:	3.51 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:

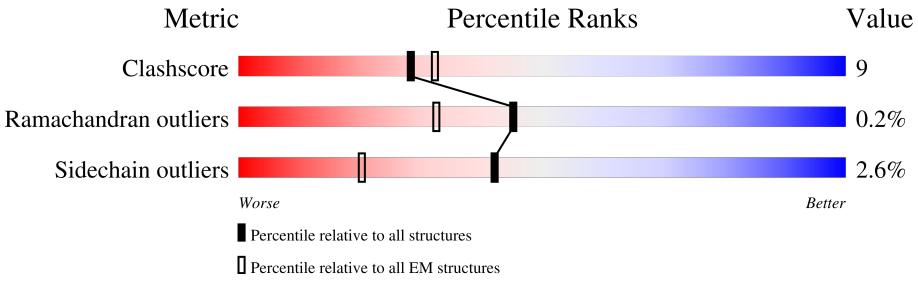
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.51 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	A	1390	80% 18%
2	B	1133	81% 15%
3	C	534	81% 14%
4	D	398	37% 9% 53%
5	E	708	47% 9% 44%
6	F	316	8% 61% 29%
7	G	223	25% 10% 63%
8	H	204	71% 22% 7%

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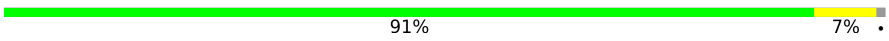
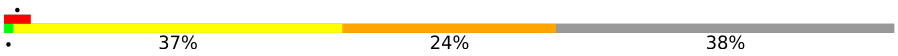
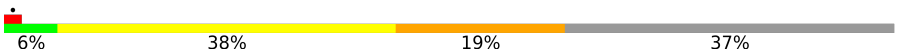
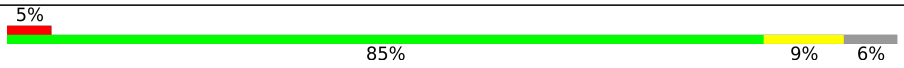
Mol	Chain	Length	Quality of chain
9	I	148	
10	J	108	
11	K	346	
12	L	133	
13	M	210	
14	N	127	
15	O	150	
16	P	58	
17	Q	67	
18	R	200	
19	S	419	
20	T	484	
21	U	368	
22	W	1519	
23	X	98	
24	Y	98	
25	Z	411	

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
28	SF4	F	401	-	-	X	-

2 Entry composition (i)

There are 28 unique types of molecules in this entry. The entry contains 56541 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called DNA-directed RNA polymerase III subunit RPC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1381	10848	6876	1891	2008	73	0	0

- Molecule 2 is a protein called DNA-directed RNA polymerase III subunit RPC2.

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

- Molecule 3 is a protein called DNA-directed RNA polymerase III subunit RPC3.

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

- Molecule 4 is a protein called DNA-directed RNA polymerase III subunit RPC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	186	1448	907	251	281	9	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerase III subunit RPC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	400	3211	2038	557	596	20	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerase III subunit RPC6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	302	2395	1512	410	457	16	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerase III subunit RPC7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	82	Total	C	N	O	S	0	0
			717	463	121	127	6		

- Molecule 8 is a protein called DNA-directed RNA polymerase III subunit RPC8.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	189	Total	C	N	O	S	0	0
			1509	979	237	286	7		

- Molecule 9 is a protein called DNA-directed RNA polymerase III subunit RPC9.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	124	Total	C	N	O	S	0	0
			1001	626	174	198	3		

- Molecule 10 is a protein called DNA-directed RNA polymerase III subunit RPC10.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	107	Total	C	N	O	S	0	0
			849	525	157	154	13		

- Molecule 11 is a protein called DNA-directed RNA polymerases I and III subunit RPAC1.

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

- Molecule 12 is a protein called DNA-directed RNA polymerases I and III subunit RPAC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	107	Total	C	N	O	S	0	0
			856	531	153	165	7		

- Molecule 13 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

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

- Molecule 14 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	78	Total	C	N	O	S	0	0
			627	402	106	114	5		

- Molecule 15 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

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

- Molecule 16 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

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

- Molecule 17 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	66	Total	C	N	O	S	0	0
			524	339	88	91	6		

- Molecule 18 is a protein called TATA-box-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	178	Total	C	N	O	S	0	0
			1402	909	246	240	7		

There are 19 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	140	MET	-	initiating methionine	UNP P20226
R	141	ALA	-	expression tag	UNP P20226
R	142	HIS	-	expression tag	UNP P20226
R	143	HIS	-	expression tag	UNP P20226
R	144	HIS	-	expression tag	UNP P20226
R	145	HIS	-	expression tag	UNP P20226
R	146	HIS	-	expression tag	UNP P20226
R	147	HIS	-	expression tag	UNP P20226
R	148	VAL	-	expression tag	UNP P20226
R	149	GLY	-	expression tag	UNP P20226
R	150	THR	-	expression tag	UNP P20226
R	151	LEU	-	expression tag	UNP P20226

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Chain	Residue	Modelled	Actual	Comment	Reference
R	152	GLU	-	expression tag	UNP P20226
R	153	VAL	-	expression tag	UNP P20226
R	154	LEU	-	expression tag	UNP P20226
R	155	PHE	-	expression tag	UNP P20226
R	156	GLN	-	expression tag	UNP P20226
R	157	GLY	-	expression tag	UNP P20226
R	158	PRO	-	expression tag	UNP P20226

- Molecule 19 is a protein called Transcription factor IIIB 50 kDa subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	361	Total	C	N	O	S	0	0
			2847	1789	506	530	22		

- Molecule 20 is a protein called Transcription factor TFIIIB component B" homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	78	Total	C	N	O	S	0	0
			665	430	117	115	3		

- Molecule 21 is a protein called snRNA-activating protein complex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	U	141	Total	C	N	O	S	0	0
			1183	770	203	202	8		

- Molecule 22 is a protein called snRNA-activating protein complex subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	242	Total	C	N	O	S	0	0
			2018	1264	370	378	6		

There are 51 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
W	-38	MET	-	initiating methionine	UNP Q5SXM2
W	-37	ALA	-	expression tag	UNP Q5SXM2
W	-36	SER	-	expression tag	UNP Q5SXM2
W	-35	TRP	-	expression tag	UNP Q5SXM2
W	-34	SER	-	expression tag	UNP Q5SXM2
W	-33	HIS	-	expression tag	UNP Q5SXM2

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Chain	Residue	Modelled	Actual	Comment	Reference
W	-32	PRO	-	expression tag	UNP Q5SXM2
W	-31	GLN	-	expression tag	UNP Q5SXM2
W	-30	PHE	-	expression tag	UNP Q5SXM2
W	-29	GLU	-	expression tag	UNP Q5SXM2
W	-28	LYS	-	expression tag	UNP Q5SXM2
W	-27	GLY	-	expression tag	UNP Q5SXM2
W	-26	GLY	-	expression tag	UNP Q5SXM2
W	-25	GLY	-	expression tag	UNP Q5SXM2
W	-24	SER	-	expression tag	UNP Q5SXM2
W	-23	GLY	-	expression tag	UNP Q5SXM2
W	-22	GLY	-	expression tag	UNP Q5SXM2
W	-21	GLY	-	expression tag	UNP Q5SXM2
W	-20	SER	-	expression tag	UNP Q5SXM2
W	-19	TRP	-	expression tag	UNP Q5SXM2
W	-18	SER	-	expression tag	UNP Q5SXM2
W	-17	HIS	-	expression tag	UNP Q5SXM2
W	-16	PRO	-	expression tag	UNP Q5SXM2
W	-15	GLN	-	expression tag	UNP Q5SXM2
W	-14	PHE	-	expression tag	UNP Q5SXM2
W	-13	GLU	-	expression tag	UNP Q5SXM2
W	-12	LYS	-	expression tag	UNP Q5SXM2
W	-11	GLY	-	expression tag	UNP Q5SXM2
W	-10	GLY	-	expression tag	UNP Q5SXM2
W	-9	GLY	-	expression tag	UNP Q5SXM2
W	-8	SER	-	expression tag	UNP Q5SXM2
W	-7	GLU	-	expression tag	UNP Q5SXM2
W	-6	ASN	-	expression tag	UNP Q5SXM2
W	-5	LEU	-	expression tag	UNP Q5SXM2
W	-4	TYR	-	expression tag	UNP Q5SXM2
W	-3	PHE	-	expression tag	UNP Q5SXM2
W	-2	GLN	-	expression tag	UNP Q5SXM2
W	-1	GLY	-	expression tag	UNP Q5SXM2
W	0	SER	-	expression tag	UNP Q5SXM2
W	1	ALA	-	expression tag	UNP Q5SXM2
W	1470	ALA	-	expression tag	UNP Q5SXM2
W	1471	HIS	-	expression tag	UNP Q5SXM2
W	1472	HIS	-	expression tag	UNP Q5SXM2
W	1473	HIS	-	expression tag	UNP Q5SXM2
W	1474	HIS	-	expression tag	UNP Q5SXM2
W	1475	HIS	-	expression tag	UNP Q5SXM2
W	1476	HIS	-	expression tag	UNP Q5SXM2
W	1477	HIS	-	expression tag	UNP Q5SXM2

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Chain	Residue	Modelled	Actual	Comment	Reference
W	1478	HIS	-	expression tag	UNP Q5SXM2
W	1479	HIS	-	expression tag	UNP Q5SXM2
W	1480	HIS	-	expression tag	UNP Q5SXM2

- Molecule 23 is a DNA chain called U6_2_Template.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	X	61	Total	C	N	O	P	0	0
			1237	595	209	372	61		

- Molecule 24 is a DNA chain called U6_2_Non template.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Y	62	Total	C	N	O	P	0	0
			1283	611	244	366	62		

- Molecule 25 is a protein called snRNA-activating protein complex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Z	385	Total	C	N	O	S	0	0
			3123	1977	533	591	22		

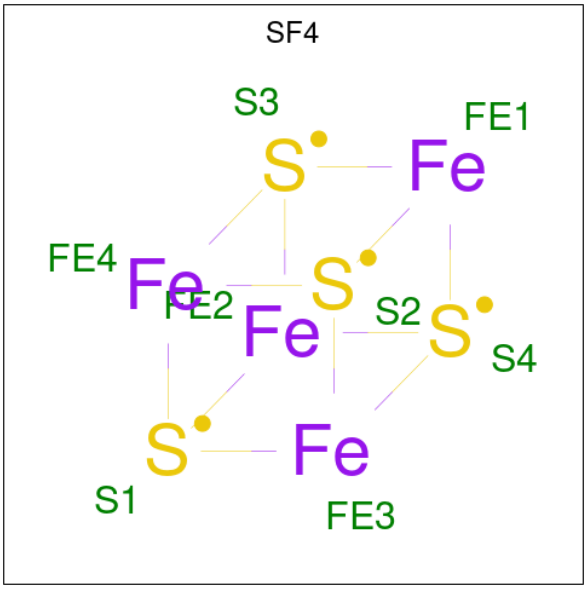
- Molecule 26 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
26	A	2	Total	Zn	0
			2	2	
26	B	1	Total	Zn	0
			1	1	
26	J	1	Total	Zn	0
			1	1	
26	P	1	Total	Zn	0
			1	1	
26	Q	1	Total	Zn	0
			1	1	
26	S	1	Total	Zn	0
			1	1	
26	Z	2	Total	Zn	0
			2	2	

- Molecule 27 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

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

- Molecule 28 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



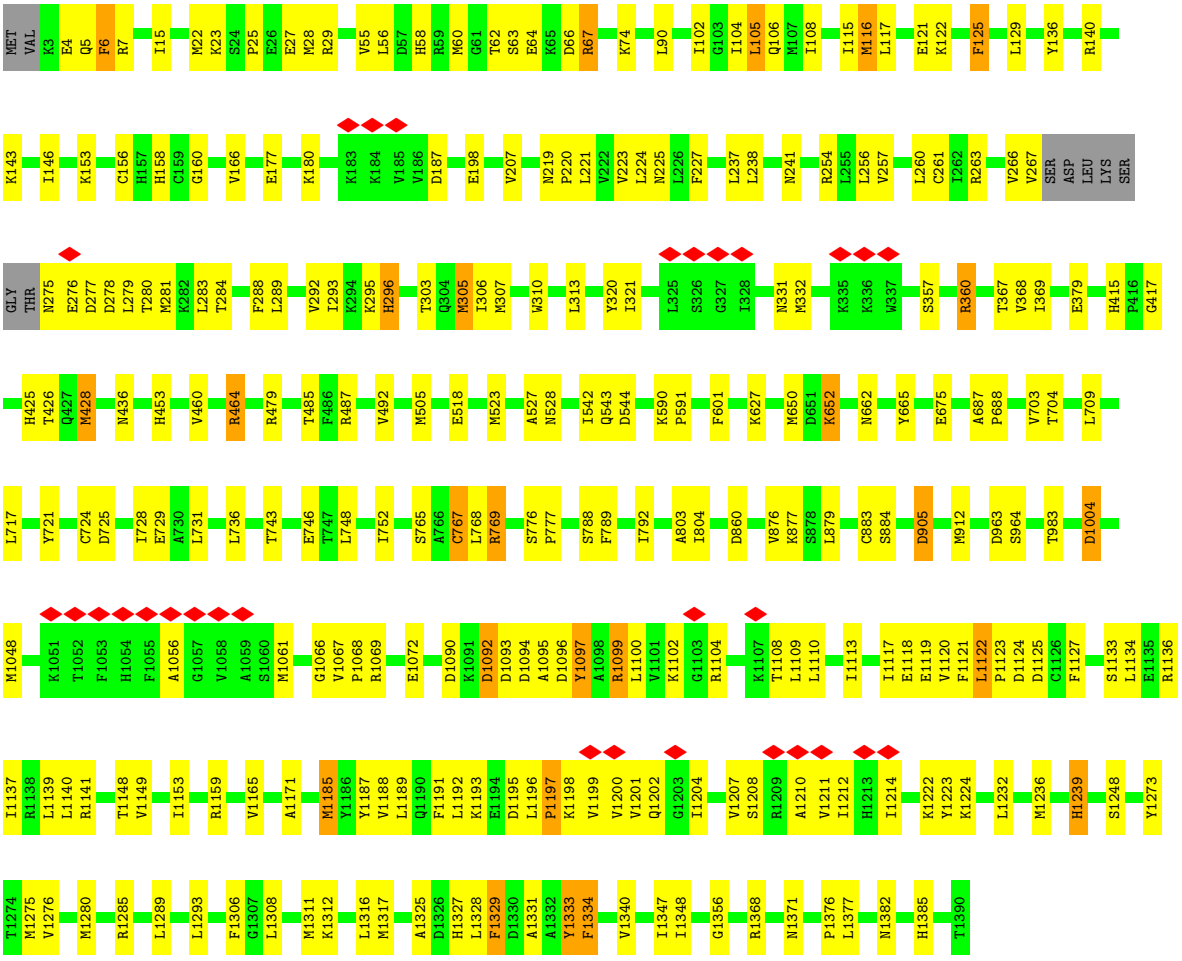
Mol	Chain	Residues	Atoms	AltConf
28	F	1	Total Fe S 8 4 4	0

3 Residue-property plots (i)

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

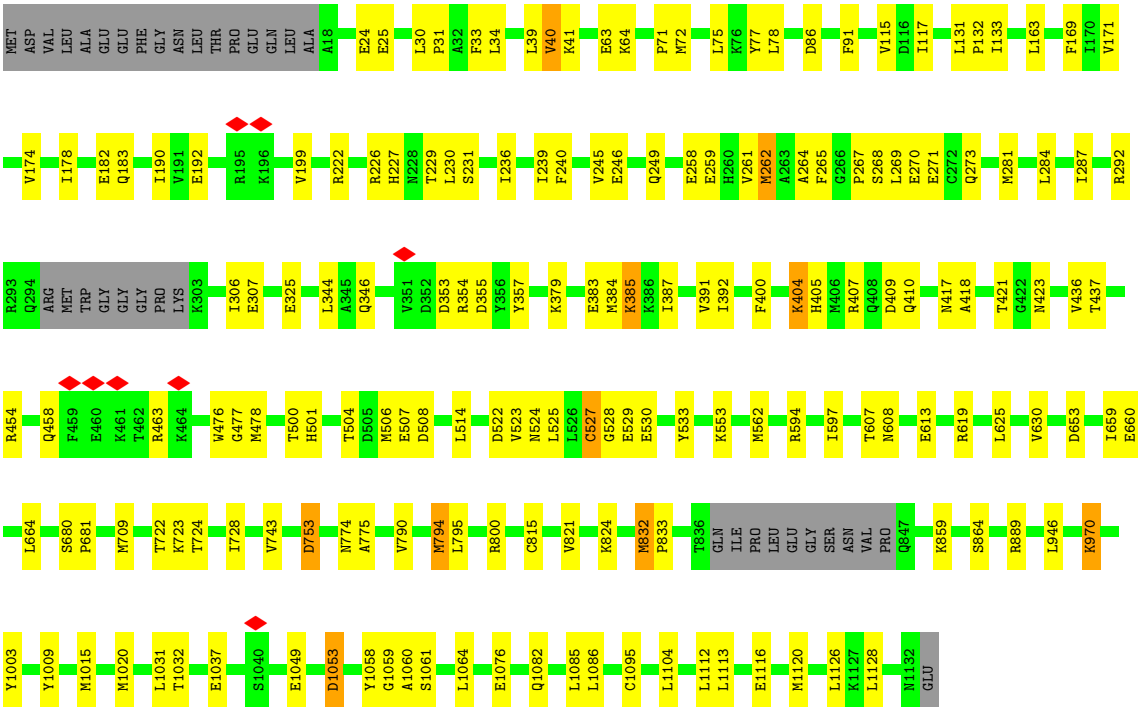
• Molecule 1: DNA-directed RNA polymerase III subunit RPC1

Chain A:



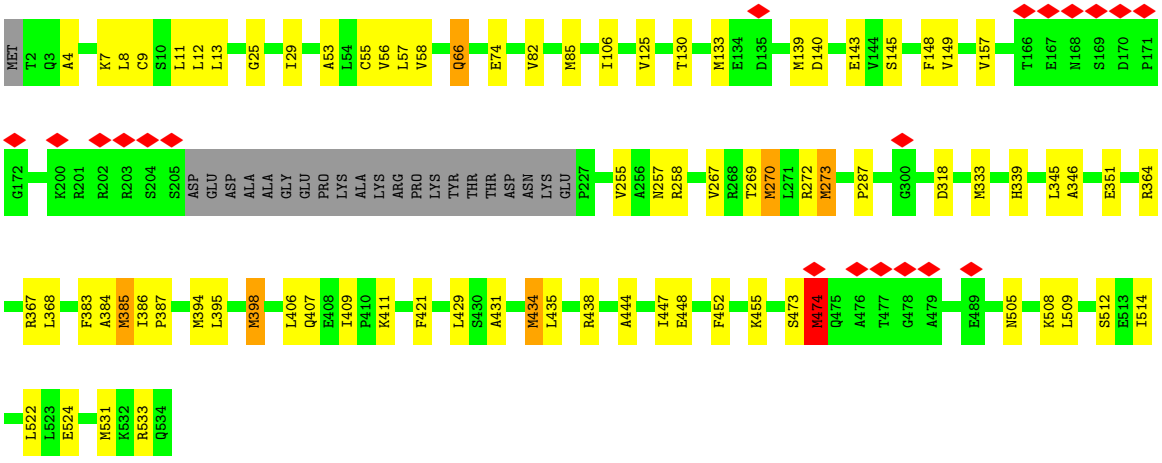
• Molecule 2: DNA-directed RNA polymerase III subunit RPC2

Chain B:



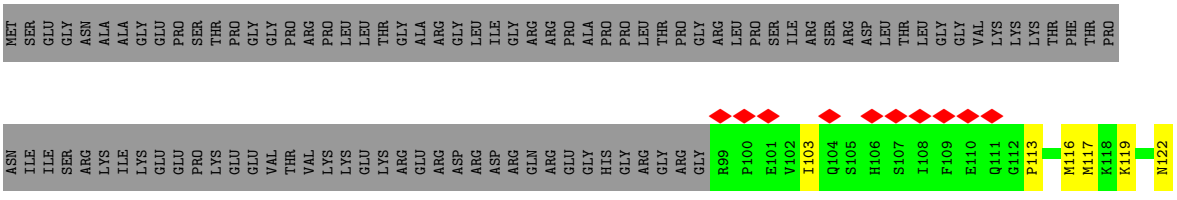
• Molecule 3: DNA-directed RNA polymerase III subunit RPC3

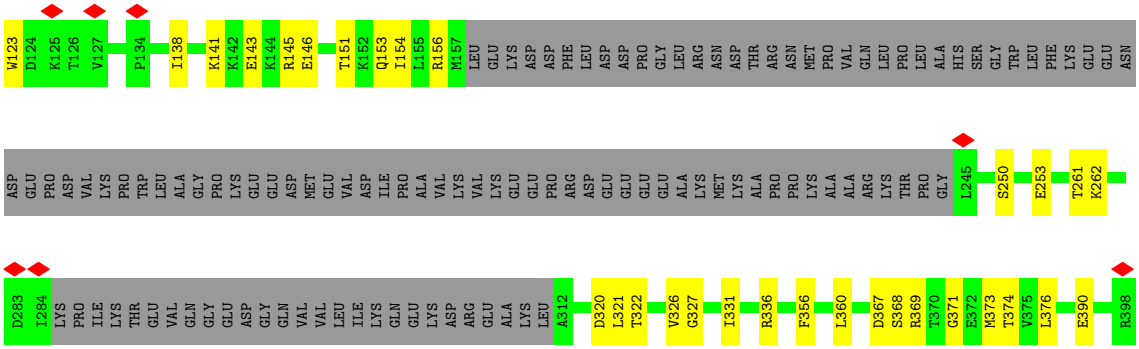
Chain C:



• Molecule 4: DNA-directed RNA polymerase III subunit RPC4

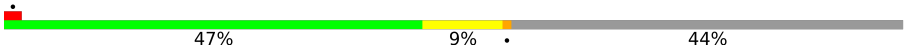
Chain D:

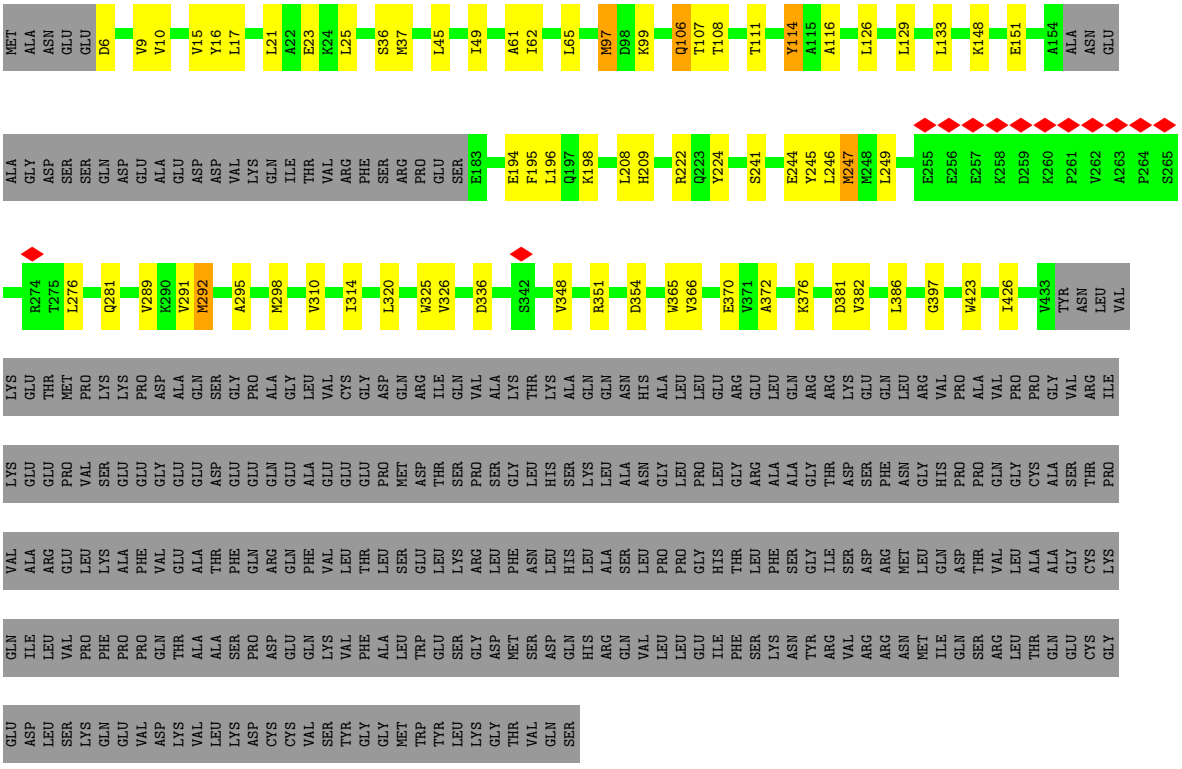




• Molecule 5: DNA-directed RNA polymerase III subunit RPC5

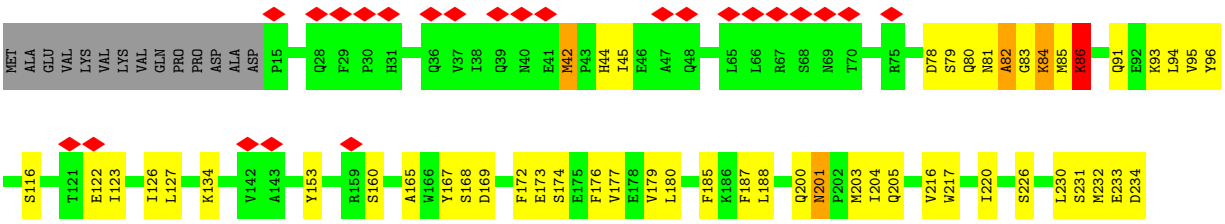
Chain E:

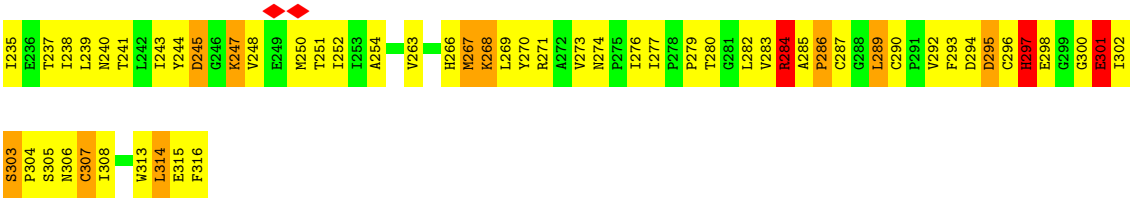




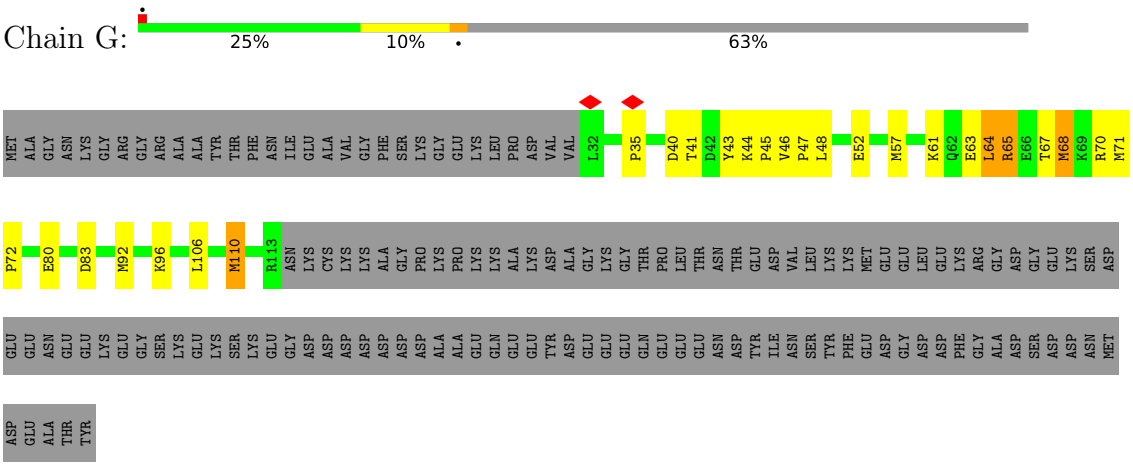
• Molecule 6: DNA-directed RNA polymerase III subunit RPC6

Chain F:

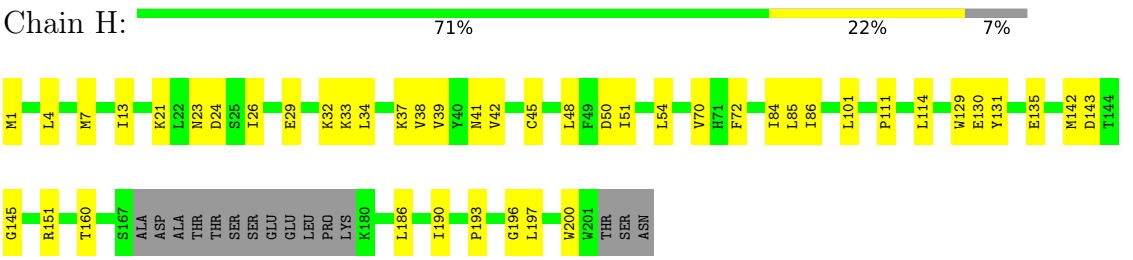




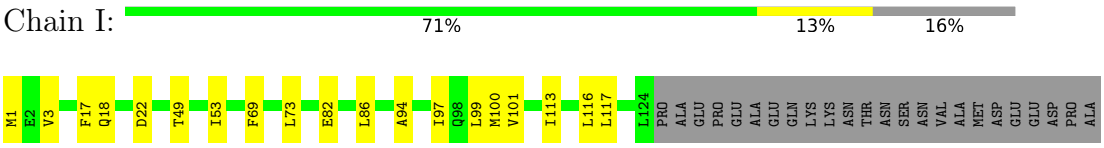
• Molecule 7: DNA-directed RNA polymerase III subunit RPC7



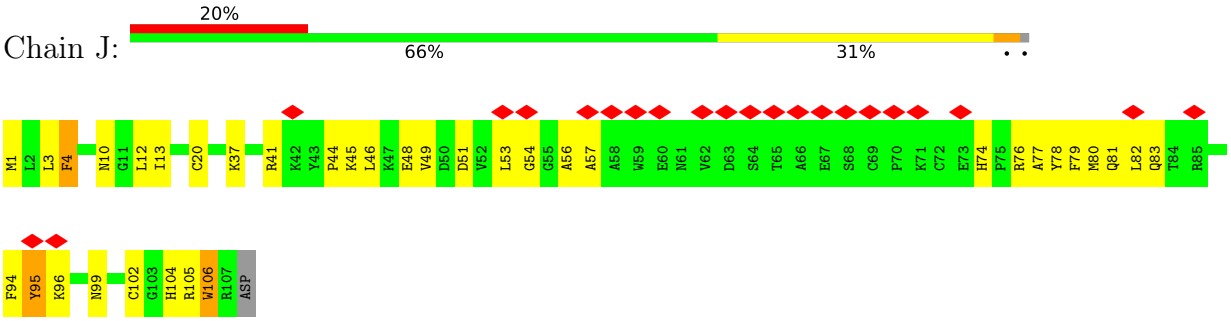
• Molecule 8: DNA-directed RNA polymerase III subunit RPC8



• Molecule 9: DNA-directed RNA polymerase III subunit RPC9

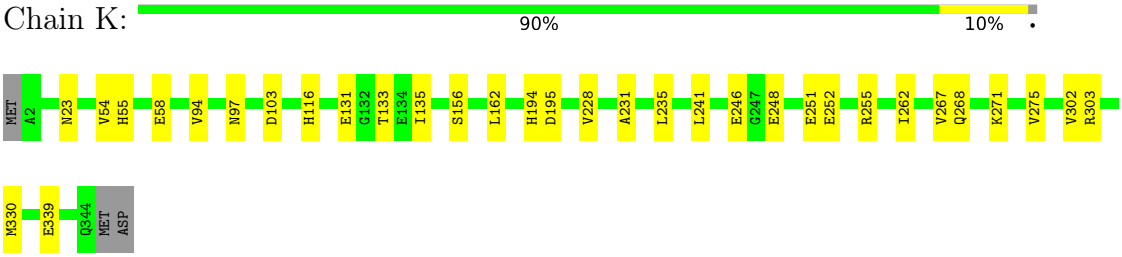


• Molecule 10: DNA-directed RNA polymerase III subunit RPC10



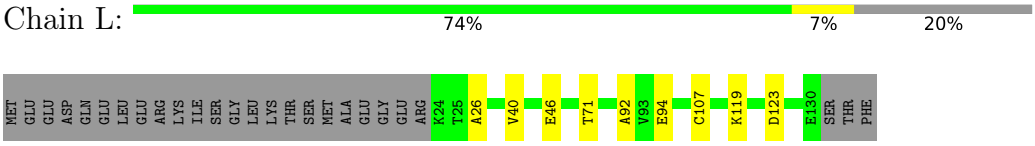
• Molecule 11: DNA-directed RNA polymerases I and III subunit RPAC1

Chain K:



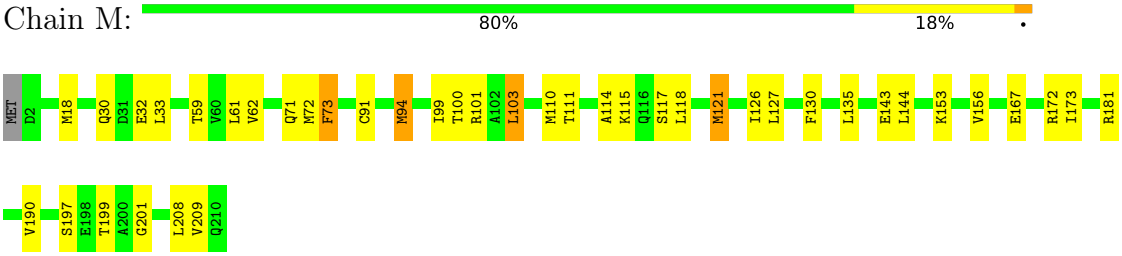
• Molecule 12: DNA-directed RNA polymerases I and III subunit RPAC2

Chain L:



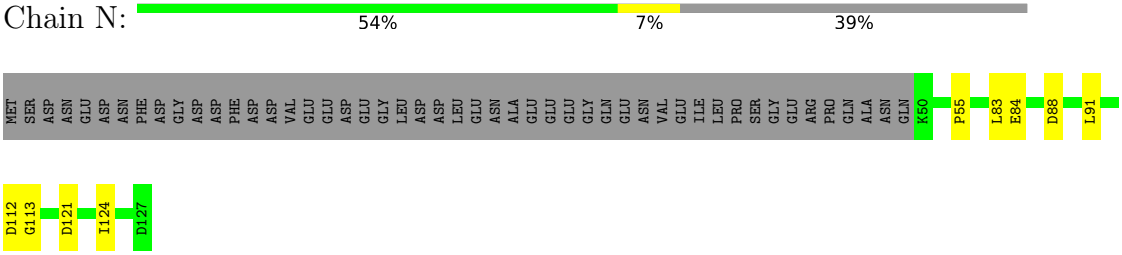
• Molecule 13: DNA-directed RNA polymerases I, II, and III subunit RPABC1

Chain M:



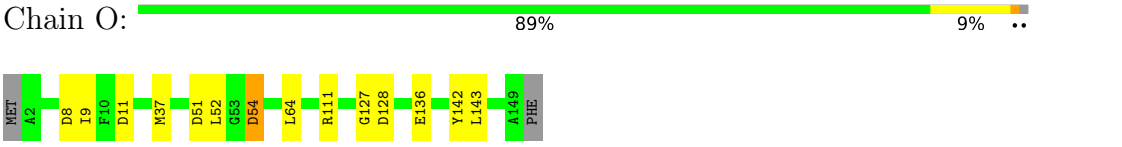
• Molecule 14: DNA-directed RNA polymerases I, II, and III subunit RPABC2

Chain N:



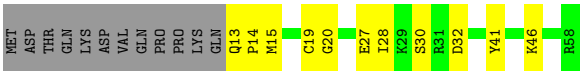
• Molecule 15: DNA-directed RNA polymerases I, II, and III subunit RPABC3

Chain O:



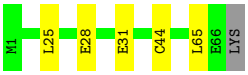
• Molecule 16: DNA-directed RNA polymerases I, II, and III subunit RPABC4

Chain P:



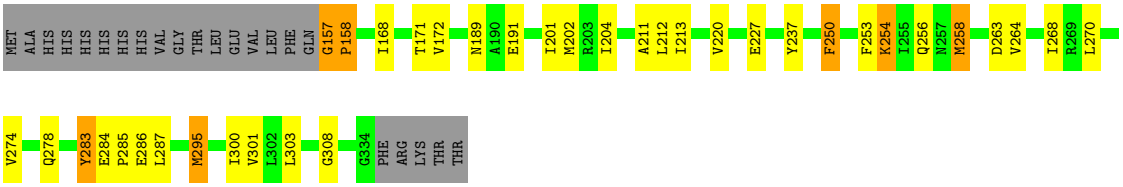
• Molecule 17: DNA-directed RNA polymerases I, II, and III subunit RPABC5

Chain Q:



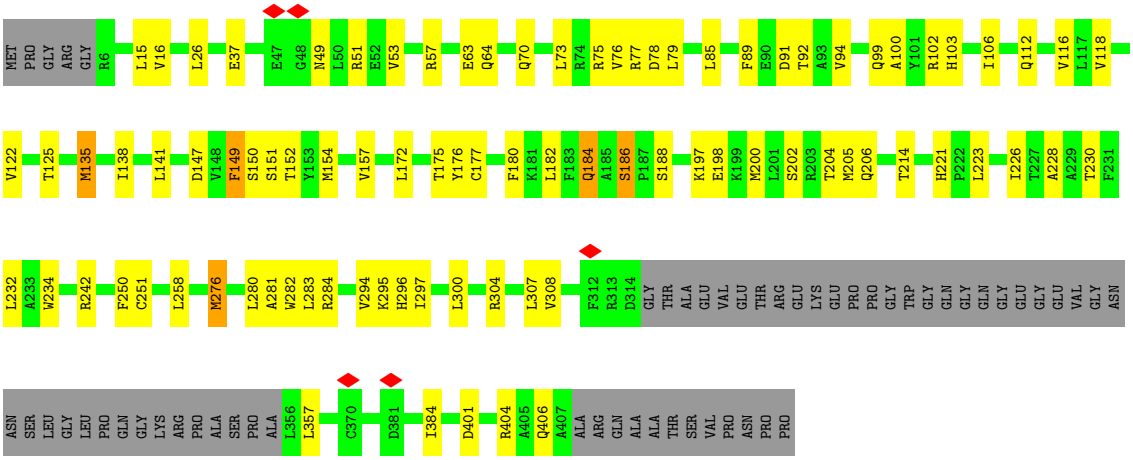
• Molecule 18: TATA-box-binding protein

Chain R:



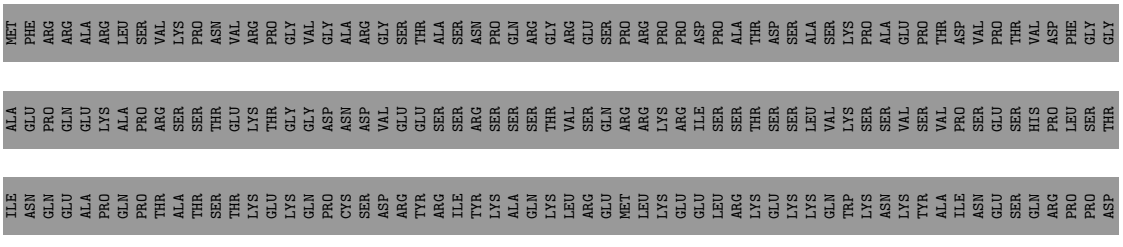
• Molecule 19: Transcription factor IIIB 50 kDa subunit

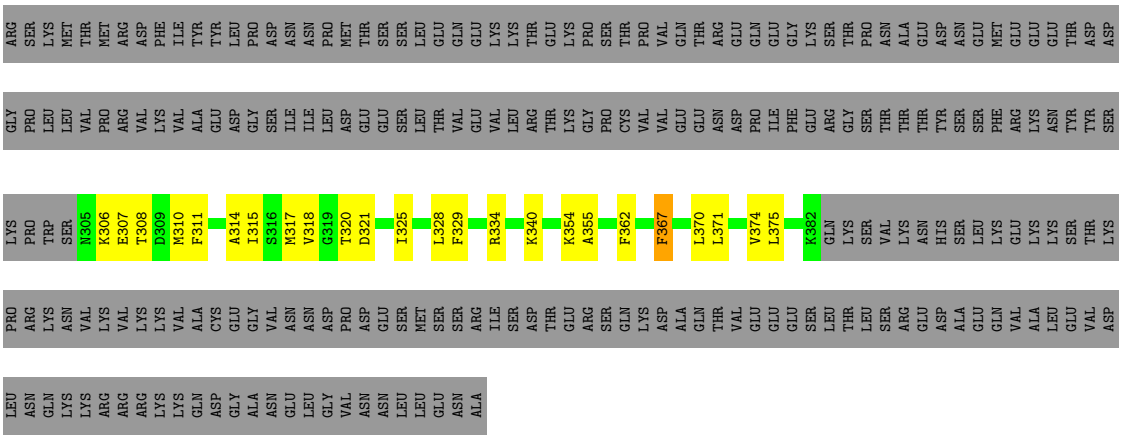
Chain S:



• Molecule 20: Transcription factor TFIIIB component B" homolog

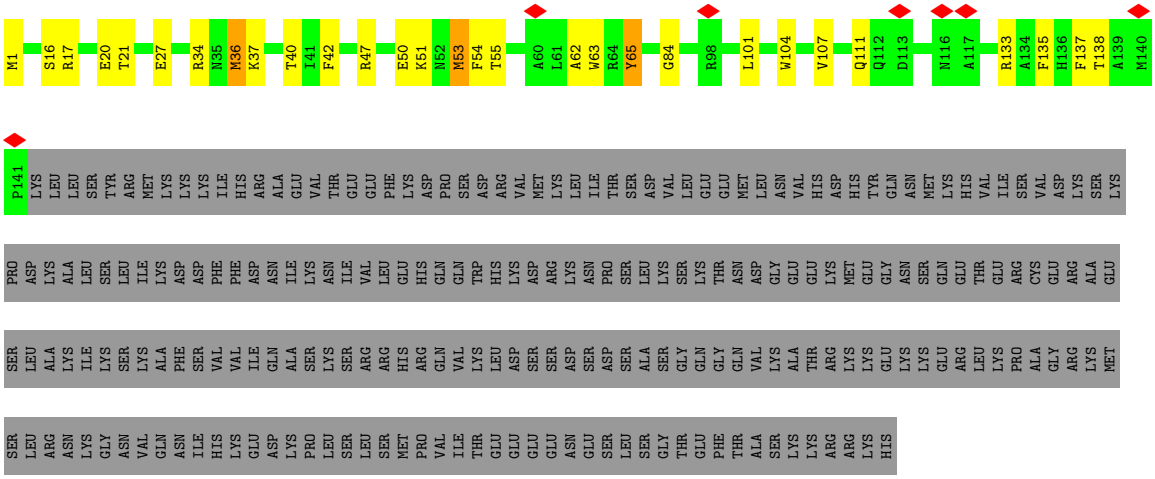
Chain T:





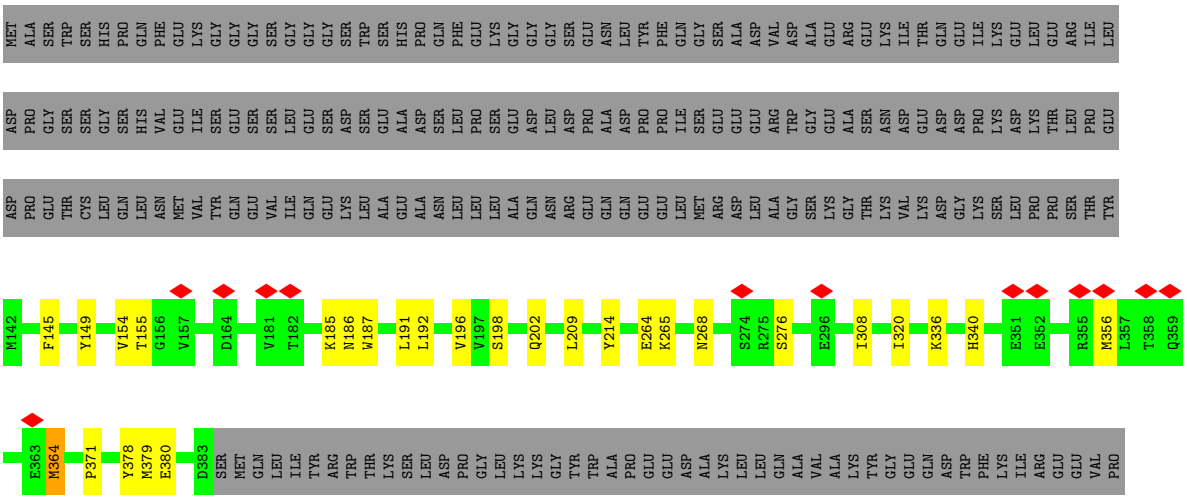
• Molecule 21: snRNA-activating protein complex subunit 1

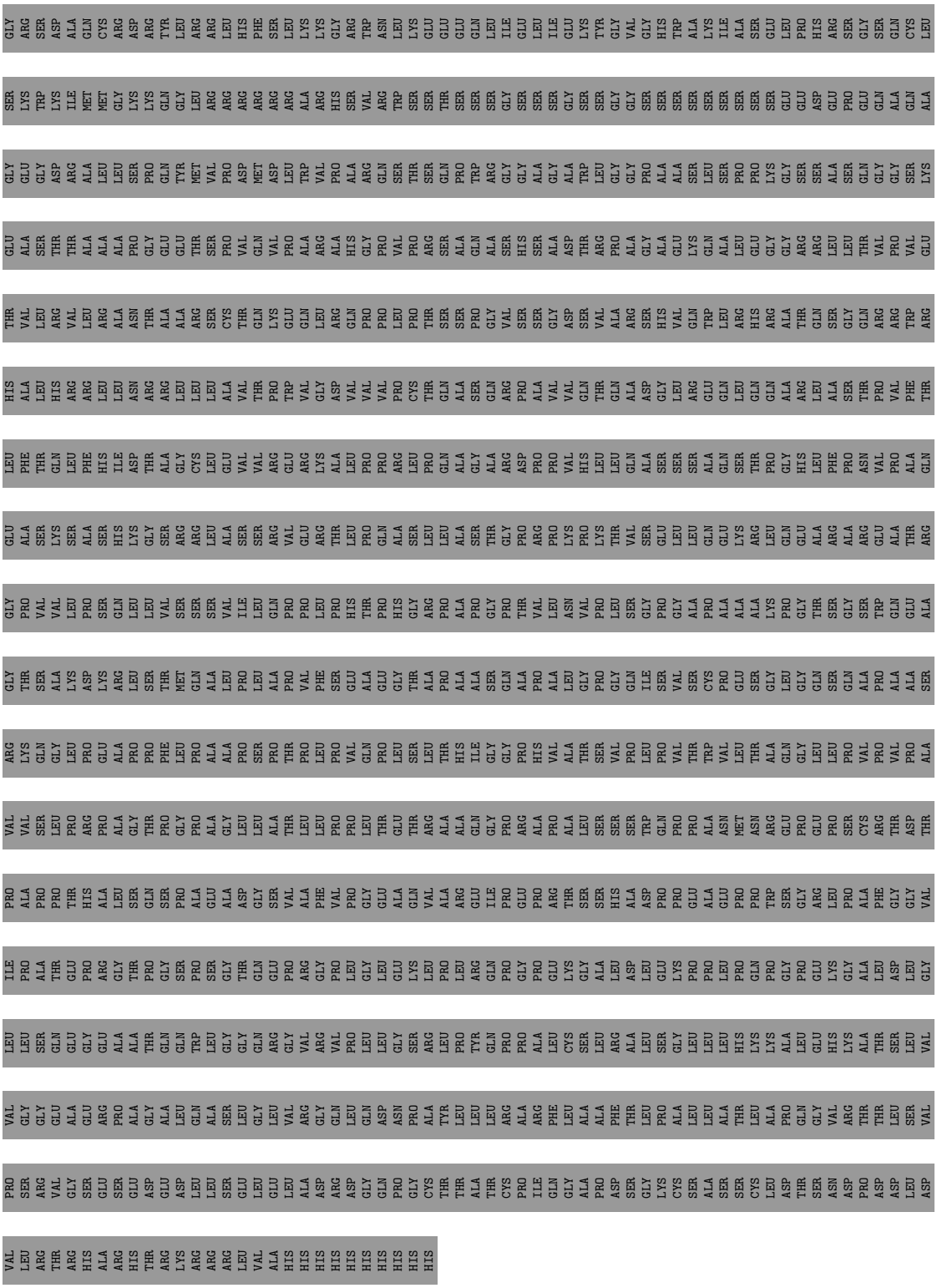
Chain U:



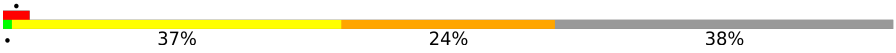
• Molecule 22: snRNA-activating protein complex subunit 4

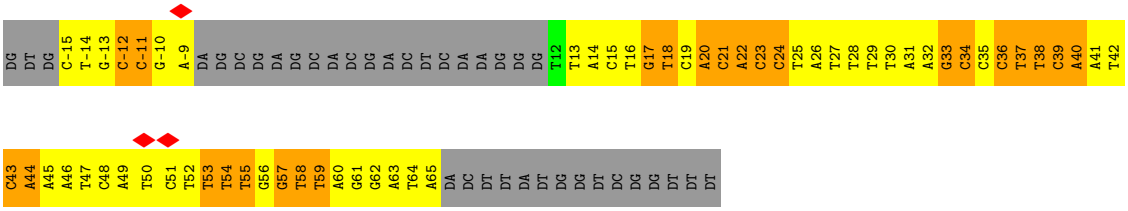
Chain W:



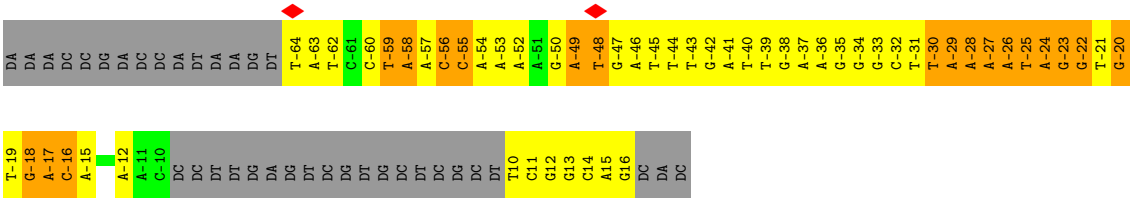


• Molecule 23: U6_2_Template

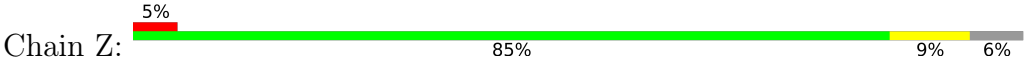
Chain X: 

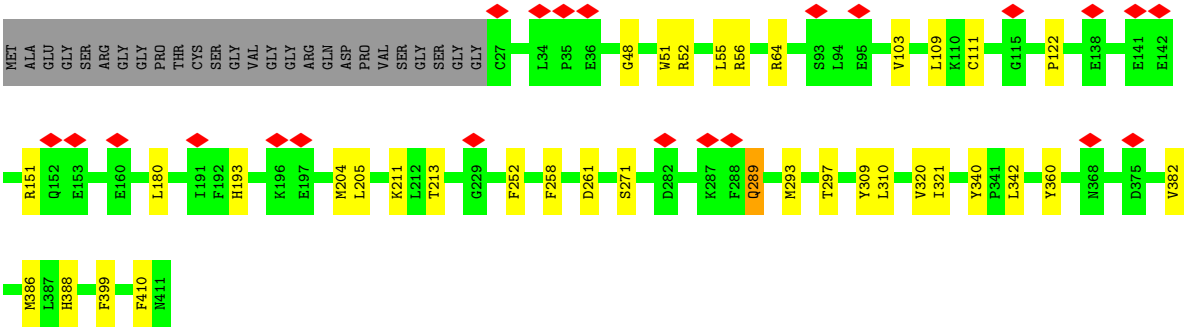


• Molecule 24: U6_2_Non template



• Molecule 25: snRNA-activating protein complex subunit 3





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	9476	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	750	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	130000	Depositor
Image detector	TFS FALCON 4i (4k x 4k)	Depositor
Maximum map value	2.320	Depositor
Minimum map value	-1.264	Depositor
Average map value	0.007	Depositor
Map value standard deviation	0.051	Depositor
Recommended contour level	0.15	Depositor
Map size (Å)	401.1, 401.1, 401.1	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.95500004, 0.95500004, 0.95500004	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: ZN, SF4, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.37	0/11044	0.60	1/14893 (0.0%)
2	B	0.42	0/8845	0.60	0/11930
3	C	0.29	0/4141	0.59	1/5592 (0.0%)
4	D	0.33	0/1466	0.61	0/1972
5	E	0.29	0/3282	0.54	0/4439
6	F	0.39	0/2438	0.64	0/3289
7	G	1.07	4/739 (0.5%)	1.05	5/996 (0.5%)
8	H	0.32	0/1551	0.53	0/2110
9	I	0.28	0/1013	0.52	0/1365
10	J	0.33	0/870	0.65	0/1175
11	K	0.45	0/2790	0.60	0/3782
12	L	0.46	0/871	0.60	0/1174
13	M	0.31	0/1745	0.58	0/2358
14	N	0.40	0/637	0.61	0/861
15	O	0.41	0/1207	0.58	0/1628
16	P	0.41	0/394	0.61	0/524
17	Q	0.51	0/533	0.59	0/719
18	R	0.82	3/1428 (0.2%)	0.97	5/1924 (0.3%)
19	S	0.31	0/2898	0.59	0/3933
20	T	0.34	0/680	0.65	0/904
21	U	0.32	0/1215	0.58	0/1640
22	W	0.29	0/2058	0.54	0/2760
23	X	0.60	0/1381	1.51	70/2124 (3.3%)
24	Y	0.60	0/1442	1.43	67/2223 (3.0%)
25	Z	0.29	0/3203	0.53	0/4335
All	All	0.41	7/57871 (0.0%)	0.68	149/78650 (0.2%)

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
1	A	0	2
6	F	0	5
7	G	0	1
All	All	0	8

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	R	158	PRO	CB-CG	23.81	2.69	1.50
7	G	35	PRO	CG-CD	-21.44	0.79	1.50
18	R	158	PRO	CG-CD	-12.82	1.08	1.50
7	G	35	PRO	N-CD	12.63	1.65	1.47
7	G	35	PRO	CB-CG	9.20	1.96	1.50
7	G	35	PRO	N-CA	-8.13	1.33	1.47
18	R	158	PRO	N-CA	-7.98	1.33	1.47

All (149) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	R	158	PRO	CB-CG-CD	-27.30	0.02	106.50
7	G	35	PRO	N-CD-CG	-20.18	72.92	103.20
18	R	158	PRO	CA-N-CD	-13.94	91.99	111.50
7	G	35	PRO	CA-CB-CG	-10.93	83.23	104.00
18	R	158	PRO	CA-CB-CG	-10.33	84.37	104.00
24	Y	-21	DT	OP1-P-O3'	8.73	124.41	105.20
24	Y	-20	DG	OP1-P-O3'	8.56	124.04	105.20
7	G	35	PRO	CA-N-CD	-8.48	99.63	111.50
23	X	18	DT	OP1-P-O3'	8.41	123.71	105.20
18	R	158	PRO	N-CA-CB	-8.08	93.61	103.30
23	X	19	DC	OP1-P-OP2	-7.97	107.65	119.60
23	X	16	DT	OP1-P-O3'	7.97	122.73	105.20
24	Y	-19	DT	OP1-P-OP2	-7.97	107.65	119.60
24	Y	-20	DG	OP1-P-OP2	-7.89	107.77	119.60
23	X	17	DG	OP1-P-OP2	-7.80	107.90	119.60
24	Y	-34	DG	OP1-P-O3'	7.54	121.80	105.20
24	Y	-33	DG	OP1-P-OP2	-7.42	108.46	119.60
23	X	29	DT	OP1-P-OP2	-7.04	109.03	119.60
23	X	34	DC	OP1-P-OP2	-7.00	109.10	119.60
23	X	27	DT	OP1-P-OP2	-6.96	109.16	119.60
24	Y	-29	DA	OP1-P-O3'	6.86	120.29	105.20
23	X	26	DA	OP2-P-O3'	6.82	120.20	105.20
24	Y	-28	DA	OP1-P-OP2	-6.70	109.55	119.60
24	Y	-38	DG	OP1-P-OP2	-6.69	109.56	119.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	X	20	DA	OP1-P-OP2	-6.61	109.68	119.60
23	X	33	DG	OP1-P-OP2	-6.59	109.72	119.60
23	X	37	DT	OP1-P-OP2	-6.54	109.79	119.60
24	Y	-39	DT	OP1-P-O3'	6.51	119.52	105.20
23	X	-10	DG	OP1-P-OP2	-6.49	109.87	119.60
23	X	36	DC	OP2-P-O3'	6.47	119.44	105.20
24	Y	-32	DC	OP1-P-OP2	-6.40	109.99	119.60
24	Y	-18	DG	OP1-P-OP2	-6.38	110.03	119.60
24	Y	-27	DA	OP1-P-OP2	-6.37	110.05	119.60
24	Y	-34	DG	OP1-P-OP2	-6.37	110.05	119.60
23	X	-14	DT	OP1-P-OP2	-6.35	110.07	119.60
24	Y	-58	DA	OP1-P-OP2	-6.30	110.16	119.60
24	Y	-64	DT	OP1-P-OP2	-6.24	110.25	119.60
1	A	1122	LEU	CA-CB-CG	6.23	129.62	115.30
24	Y	-29	DA	OP1-P-OP2	-6.19	110.32	119.60
23	X	32	DA	OP1-P-O3'	6.16	118.76	105.20
24	Y	-43	DT	OP1-P-OP2	-6.14	110.39	119.60
23	X	50	DT	OP1-P-OP2	-6.14	110.39	119.60
24	Y	-42	DG	OP1-P-OP2	-6.14	110.39	119.60
24	Y	-39	DT	OP1-P-OP2	-6.10	110.45	119.60
24	Y	-25	DT	OP1-P-OP2	-6.09	110.46	119.60
23	X	-15	DC	OP1-P-OP2	-6.09	110.46	119.60
23	X	16	DT	OP1-P-OP2	-6.08	110.48	119.60
24	Y	-63	DA	OP1-P-OP2	-6.08	110.48	119.60
24	Y	-33	DG	OP1-P-O3'	6.07	118.56	105.20
23	X	38	DT	OP1-P-OP2	-6.05	110.53	119.60
23	X	28	DT	OP1-P-OP2	-6.03	110.55	119.60
24	Y	-50	DG	OP1-P-OP2	-6.03	110.56	119.60
23	X	24	DC	OP1-P-OP2	-6.00	110.60	119.60
23	X	54	DT	OP1-P-OP2	-6.00	110.60	119.60
23	X	31	DA	OP1-P-OP2	-5.97	110.64	119.60
23	X	-11	DC	OP1-P-OP2	-5.97	110.65	119.60
23	X	49	DA	OP1-P-OP2	-5.96	110.66	119.60
24	Y	-54	DA	OP1-P-OP2	-5.96	110.66	119.60
23	X	43	DC	OP1-P-OP2	-5.94	110.69	119.60
24	Y	10	DT	OP1-P-OP2	-5.94	110.68	119.60
23	X	-12	DC	OP1-P-OP2	-5.94	110.69	119.60
24	Y	11	DC	OP1-P-OP2	-5.93	110.70	119.60
23	X	57	DG	OP1-P-OP2	-5.92	110.72	119.60
23	X	42	DT	OP1-P-OP2	-5.91	110.74	119.60
24	Y	13	DG	OP1-P-OP2	-5.90	110.75	119.60
23	X	61	DG	OP1-P-OP2	-5.90	110.75	119.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	X	52	DT	OP1-P-OP2	-5.89	110.77	119.60
23	X	60	DA	OP1-P-OP2	-5.89	110.77	119.60
24	Y	-21	DT	OP1-P-OP2	-5.86	110.81	119.60
24	Y	-56	DC	OP1-P-OP2	-5.85	110.82	119.60
24	Y	-53	DA	OP1-P-OP2	-5.85	110.83	119.60
23	X	56	DG	OP1-P-OP2	-5.85	110.83	119.60
23	X	21	DC	OP1-P-OP2	-5.84	110.83	119.60
23	X	25	DT	OP1-P-OP2	-5.83	110.86	119.60
24	Y	-59	DT	OP1-P-OP2	-5.83	110.86	119.60
23	X	30	DT	OP1-P-OP2	-5.82	110.87	119.60
24	Y	-30	DT	OP1-P-OP2	-5.82	110.87	119.60
23	X	18	DT	OP1-P-OP2	-5.80	110.90	119.60
24	Y	-37	DA	OP1-P-OP2	-5.79	110.92	119.60
24	Y	-31	DT	OP1-P-OP2	-5.79	110.92	119.60
24	Y	-35	DG	OP1-P-OP2	-5.79	110.92	119.60
23	X	55	DT	OP1-P-OP2	-5.78	110.93	119.60
23	X	46	DA	OP1-P-OP2	-5.77	110.94	119.60
24	Y	-57	DA	OP1-P-OP2	-5.77	110.95	119.60
24	Y	-55	DC	OP1-P-OP2	-5.76	110.97	119.60
24	Y	14	DC	OP1-P-OP2	-5.75	110.98	119.60
23	X	44	DA	OP1-P-OP2	-5.73	111.01	119.60
23	X	51	DC	OP1-P-OP2	-5.72	111.02	119.60
24	Y	-23	DG	OP1-P-OP2	-5.70	111.06	119.60
23	X	59	DT	OP1-P-OP2	-5.69	111.06	119.60
23	X	28	DT	OP2-P-O3'	5.69	117.71	105.20
3	C	474	MET	CA-CB-CG	5.68	122.96	113.30
24	Y	-49	DA	OP1-P-OP2	-5.67	111.09	119.60
23	X	47	DT	OP1-P-OP2	-5.66	111.10	119.60
18	R	157	GLY	C-N-CD	5.66	140.29	128.40
23	X	39	DC	OP1-P-OP2	-5.66	111.11	119.60
24	Y	-41	DA	OP1-P-OP2	-5.66	111.12	119.60
24	Y	-26	DA	OP2-P-O3'	5.66	117.64	105.20
24	Y	-36	DA	OP1-P-OP2	-5.65	111.13	119.60
23	X	62	DG	OP1-P-OP2	-5.64	111.14	119.60
24	Y	-52	DA	OP1-P-OP2	-5.63	111.15	119.60
24	Y	12	DG	OP1-P-OP2	-5.63	111.16	119.60
24	Y	16	DG	OP1-P-OP2	-5.63	111.16	119.60
23	X	65	DA	OP1-P-OP2	-5.61	111.18	119.60
24	Y	-45	DT	OP1-P-OP2	-5.61	111.19	119.60
24	Y	-44	DT	OP1-P-OP2	-5.60	111.19	119.60
24	Y	-16	DC	OP1-P-OP2	-5.60	111.19	119.60
24	Y	-62	DT	OP1-P-OP2	-5.60	111.20	119.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	X	-9	DA	OP1-P-OP2	-5.59	111.21	119.60
23	X	45	DA	OP1-P-OP2	-5.59	111.22	119.60
23	X	40	DA	OP1-P-OP2	-5.56	111.26	119.60
23	X	58	DT	OP1-P-OP2	-5.56	111.26	119.60
24	Y	-40	DT	OP1-P-OP2	-5.55	111.27	119.60
23	X	22	DA	OP1-P-OP2	-5.54	111.30	119.60
23	X	36	DC	OP1-P-OP2	-5.54	111.30	119.60
23	X	41	DA	OP1-P-OP2	-5.53	111.30	119.60
24	Y	-48	DT	OP1-P-OP2	-5.53	111.31	119.60
23	X	48	DC	OP1-P-OP2	-5.52	111.31	119.60
24	Y	-22	DG	OP1-P-OP2	-5.52	111.32	119.60
24	Y	15	DA	OP1-P-OP2	-5.51	111.34	119.60
23	X	63	DA	OP1-P-OP2	-5.50	111.36	119.60
24	Y	-24	DA	OP1-P-OP2	-5.49	111.36	119.60
24	Y	-46	DA	OP1-P-OP2	-5.48	111.38	119.60
24	Y	-47	DG	OP1-P-OP2	-5.46	111.41	119.60
24	Y	-32	DC	OP1-P-O3'	5.46	117.21	105.20
23	X	19	DC	OP1-P-O3'	5.46	117.20	105.20
7	G	35	PRO	N-CA-CB	-5.45	96.61	102.60
23	X	-13	DG	OP1-P-OP2	-5.44	111.44	119.60
24	Y	-60	DC	OP1-P-OP2	-5.42	111.46	119.60
24	Y	-26	DA	OP1-P-OP2	-5.39	111.51	119.60
23	X	64	DT	OP1-P-OP2	-5.33	111.60	119.60
24	Y	-19	DT	OP1-P-O3'	5.33	116.94	105.20
23	X	-15	DC	OP2-P-O3'	5.33	116.93	105.20
23	X	15	DC	OP1-P-O3'	5.33	116.93	105.20
23	X	34	DC	OP1-P-O3'	5.32	116.89	105.20
23	X	35	DC	OP1-P-OP2	-5.32	111.63	119.60
23	X	-11	DC	OP1-P-O3'	5.31	116.89	105.20
23	X	26	DA	OP1-P-OP2	-5.28	111.69	119.60
23	X	53	DT	OP1-P-OP2	-5.27	111.69	119.60
23	X	32	DA	OP1-P-OP2	-5.23	111.75	119.60
24	Y	-17	DA	OP1-P-OP2	-5.22	111.76	119.60
7	G	64	LEU	CA-CB-CG	5.21	127.29	115.30
23	X	49	DA	OP1-P-O3'	5.17	116.58	105.20
24	Y	-35	DG	OP1-P-O3'	5.17	116.57	105.20
24	Y	-30	DT	O4'-C1'-N1	5.10	111.57	108.00
24	Y	-59	DT	OP1-P-O3'	5.09	116.40	105.20
24	Y	-28	DA	OP1-P-O3'	5.08	116.37	105.20
23	X	23	DC	OP1-P-OP2	-5.07	112.00	119.60
23	X	41	DA	OP1-P-O3'	5.04	116.29	105.20

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1092	ASP	Peptide
1	A	1198	LYS	Peptide
6	F	201	ASN	Peptide
6	F	284	ARG	Sidechain
6	F	84	LYS	Peptide
6	F	85	MET	Peptide
6	F	86	LYS	Peptide
7	G	65	ARG	Sidechain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	10848	0	11089	261	0
2	B	8680	0	8805	142	0
3	C	4075	0	4149	73	0
4	D	1448	0	1489	33	0
5	E	3211	0	3227	49	0
6	F	2395	0	2404	131	0
7	G	717	0	719	24	0
8	H	1509	0	1461	31	0
9	I	1001	0	1028	15	0
10	J	849	0	813	62	0
11	K	2736	0	2712	22	0
12	L	856	0	840	9	0
13	M	1715	0	1733	37	0
14	N	627	0	659	8	0
15	O	1186	0	1147	13	0
16	P	388	0	393	8	0
17	Q	524	0	540	4	0
18	R	1402	0	1489	30	0
19	S	2847	0	2887	83	0
20	T	665	0	665	21	0
21	U	1183	0	1175	26	0
22	W	2018	0	1997	22	0
23	X	1237	0	695	23	0
24	Y	1283	0	700	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
25	Z	3123	0	2983	32	0
26	A	2	0	0	0	0
26	B	1	0	0	0	0
26	J	1	0	0	0	0
26	P	1	0	0	0	0
26	Q	1	0	0	0	0
26	S	1	0	0	0	0
26	Z	2	0	0	0	0
27	A	1	0	0	0	0
28	F	8	0	0	6	0
All	All	56541	0	55799	1033	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 9.

All (1033) 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)
15:O:51:ASP:OD1	15:O:52:LEU:N	1.98	0.97
21:U:37:LYS:HE3	21:U:40:THR:HG23	1.57	0.87
6:F:293:PHE:HA	28:F:401:SF4:S2	2.18	0.82
1:A:1094:ASP:OD1	1:A:1095:ALA:N	2.13	0.82
2:B:410:GLN:N	2:B:410:GLN:OE1	2.13	0.82
13:M:156:VAL:HG21	13:M:190:VAL:HG21	1.62	0.82
9:I:100:MET:HE3	9:I:101:VAL:HG23	1.65	0.79
22:W:198:SER:O	22:W:202:GLN:NE2	2.16	0.78
7:G:63:GLU:O	7:G:67:THR:HG23	1.84	0.78
1:A:1092:ASP:HB3	10:J:99:ASN:HB2	1.65	0.78
2:B:409:ASP:OD1	2:B:410:GLN:N	2.16	0.78
14:N:84:GLU:OE2	14:N:84:GLU:N	2.17	0.78
19:S:37:GLU:N	19:S:37:GLU:OE1	2.17	0.78
1:A:1122:LEU:HD12	1:A:1123:PRO:HD2	1.68	0.76
6:F:42:MET:SD	6:F:45:ILE:HD12	2.26	0.75
1:A:28:MET:CE	1:A:256:LEU:HD22	2.16	0.75
19:S:226:ILE:O	19:S:230:THR:HG23	1.87	0.74
5:E:241:SER:OG	5:E:244:GLU:OE1	2.06	0.74
1:A:1056:ALA:HB3	1:A:1061:MET:CE	2.17	0.74
16:P:19:CYS:SG	16:P:20:GLY:N	2.61	0.73
13:M:30:GLN:HA	13:M:33:LEU:HD23	1.68	0.73
13:M:121:MET:SD	13:M:121:MET:N	2.62	0.73
18:R:157:GLY:CA	18:R:158:PRO:HG3	2.19	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:143:GLU:OE1	4:D:143:GLU:N	2.22	0.72
22:W:356:MET:SD	22:W:379:MET:HB3	2.29	0.72
6:F:239:LEU:HD22	6:F:266:HIS:CE1	2.24	0.72
1:A:267:VAL:HG11	19:S:51:ARG:NE	2.05	0.71
6:F:287:CYS:HG	28:F:401:SF4:FE4	1.05	0.70
18:R:157:GLY:HA3	18:R:158:PRO:HG3	1.73	0.70
5:E:291:VAL:C	5:E:292:MET:HE3	2.12	0.70
5:E:382:VAL:O	5:E:386:LEU:HD12	1.92	0.70
6:F:201:ASN:OD1	6:F:204:ILE:HG12	1.92	0.70
6:F:252:ILE:HG23	6:F:254:ALA:H	1.56	0.69
1:A:518:GLU:OE1	2:B:1060:ALA:HB1	1.93	0.69
5:E:9:VAL:HG23	5:E:10:VAL:HG22	1.74	0.69
6:F:287:CYS:SG	28:F:401:SF4:FE4	1.85	0.69
1:A:1139:LEU:HD23	1:A:1140:LEU:HD23	1.75	0.69
19:S:63:GLU:OE1	19:S:63:GLU:N	2.24	0.69
19:S:280:LEU:HD11	19:S:307:LEU:HD13	1.74	0.69
1:A:223:VAL:HB	1:A:227:PHE:HE1	1.57	0.69
1:A:1196:LEU:HB3	1:A:1197:PRO:HD3	1.74	0.68
3:C:385:MET:CE	6:F:241:THR:HG21	2.24	0.68
1:A:90:LEU:HD12	1:A:310:TRP:CZ3	2.28	0.68
1:A:1093:ASP:O	10:J:77:ALA:HB3	1.95	0.67
1:A:1134:LEU:HD12	1:A:1134:LEU:H	1.57	0.67
6:F:251:THR:HG22	6:F:251:THR:O	1.94	0.67
1:A:90:LEU:HD12	1:A:310:TRP:HZ3	1.60	0.67
2:B:75:LEU:HD11	2:B:117:ILE:HD11	1.77	0.67
1:A:60:MET:HE1	1:A:257:VAL:HG13	1.78	0.66
2:B:115:VAL:HB	2:B:133:ILE:HD11	1.77	0.66
22:W:154:VAL:HG23	22:W:155:THR:HG23	1.77	0.66
1:A:28:MET:HE1	1:A:256:LEU:HD22	1.76	0.66
6:F:287:CYS:HA	28:F:401:SF4:S2	2.35	0.66
19:S:116:VAL:HG21	19:S:149:PHE:HA	1.77	0.66
1:A:1140:LEU:HD22	10:J:82:LEU:HA	1.77	0.66
1:A:1204:ILE:HD12	10:J:51:ASP:HB2	1.78	0.66
11:K:248:GLU:O	11:K:252:GLU:OE1	2.14	0.66
21:U:37:LYS:CE	21:U:40:THR:HG23	2.26	0.66
6:F:290:CYS:SG	28:F:401:SF4:S4	2.94	0.65
3:C:407:GLN:OE1	3:C:409:ILE:HG23	1.97	0.65
2:B:529:GLU:OE2	2:B:533:TYR:OH	2.15	0.65
11:K:131:GLU:N	11:K:131:GLU:OE1	2.30	0.65
1:A:1056:ALA:HB3	1:A:1061:MET:HE3	1.77	0.65
20:T:370:LEU:O	20:T:374:VAL:HG23	1.97	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:18:MET:CE	13:M:33:LEU:HD22	2.27	0.65
19:S:112:GLN:O	19:S:116:VAL:HG12	1.97	0.65
6:F:267:MET:SD	6:F:268:LYS:N	2.71	0.64
1:A:485:THR:O	1:A:487:ARG:NH1	2.29	0.64
3:C:53:ALA:O	3:C:57:LEU:HD22	1.98	0.64
6:F:237:THR:O	6:F:241:THR:HG23	1.97	0.64
19:S:223:LEU:O	19:S:226:ILE:HG22	1.97	0.63
13:M:18:MET:HE2	13:M:33:LEU:HD22	1.78	0.63
3:C:85:MET:SD	3:C:85:MET:N	2.72	0.63
3:C:395:LEU:HA	3:C:398:MET:SD	2.39	0.63
3:C:431:ALA:O	3:C:435:LEU:HD22	1.97	0.63
5:E:116:ALA:HB2	5:E:129:LEU:HD11	1.80	0.63
24:Y:-26:DA:H2'	24:Y:-25:DT:C6	2.33	0.63
2:B:1085:LEU:HD12	2:B:1086:LEU:HD23	1.81	0.63
2:B:743:VAL:O	2:B:743:VAL:HG23	1.98	0.63
19:S:135:MET:N	19:S:135:MET:SD	2.72	0.63
25:Z:213:THR:HG22	25:Z:293:MET:SD	2.38	0.63
1:A:15:ILE:HD12	1:A:15:ILE:H	1.64	0.63
2:B:774:ASN:OD1	2:B:775:ALA:N	2.32	0.63
5:E:289:VAL:HG13	5:E:292:MET:HE2	1.80	0.63
1:A:105:LEU:HD13	1:A:166:VAL:HG11	1.81	0.62
8:H:197:LEU:HD13	8:H:200:TRP:CZ2	2.34	0.62
1:A:64:GLU:HB2	1:A:67:ARG:HG2	1.82	0.62
1:A:765:SER:O	1:A:769:ARG:HD2	1.99	0.62
1:A:1108:THR:OG1	10:J:49:VAL:O	2.16	0.62
9:I:97:ILE:HD13	9:I:116:LEU:HD11	1.82	0.62
1:A:15:ILE:HD11	2:B:1104:LEU:HD21	1.81	0.62
3:C:269:THR:HG22	3:C:273:MET:HE3	1.82	0.62
11:K:252:GLU:OE1	11:K:252:GLU:N	2.32	0.62
1:A:963:ASP:OD1	1:A:964:SER:N	2.32	0.62
1:A:1239:HIS:CG	10:J:56:ALA:HB3	2.33	0.62
2:B:63:GLU:OE1	2:B:63:GLU:N	2.33	0.62
4:D:390:GLU:OE1	4:D:390:GLU:N	2.32	0.62
5:E:292:MET:SD	5:E:292:MET:N	2.73	0.62
9:I:82:GLU:O	9:I:86:LEU:HG	2.00	0.62
1:A:1201:VAL:HG23	10:J:46:LEU:HD21	1.82	0.62
6:F:187:PHE:HE2	6:F:216:VAL:HG22	1.65	0.62
3:C:8:LEU:CD2	3:C:444:ALA:HB2	2.30	0.62
13:M:143:GLU:OE2	13:M:144:LEU:HD23	2.00	0.62
1:A:117:LEU:HD13	1:A:125:PHE:CE2	2.35	0.61
2:B:239:ILE:H	2:B:239:ILE:HD12	1.64	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:T:367:PHE:O	20:T:371:LEU:HD13	1.99	0.61
1:A:1347:ILE:HD11	2:B:1064:LEU:HD12	1.81	0.61
9:I:17:PHE:CD1	9:I:53:ILE:HD12	2.34	0.61
1:A:518:GLU:OE1	2:B:1061:SER:N	2.32	0.61
1:A:28:MET:HE2	1:A:256:LEU:HD22	1.82	0.61
5:E:241:SER:HG	5:E:244:GLU:CD	2.04	0.61
13:M:72:MET:SD	13:M:73:PHE:N	2.72	0.61
13:M:18:MET:HE1	13:M:33:LEU:N	2.15	0.61
2:B:222:ARG:HG2	2:B:268:SER:HA	1.81	0.61
13:M:117:SER:O	13:M:121:MET:HE3	2.01	0.61
3:C:512:SER:OG	7:G:48:LEU:HD21	2.00	0.60
1:A:1159:ARG:O	1:A:1159:ARG:HG2	2.01	0.60
3:C:431:ALA:HA	3:C:434:MET:SD	2.41	0.60
7:G:44:LYS:HE2	7:G:44:LYS:HA	1.83	0.60
13:M:190:VAL:HG22	13:M:208:LEU:CD2	2.31	0.60
21:U:17:ARG:O	21:U:21:THR:HG23	2.02	0.60
10:J:82:LEU:HD21	10:J:94:PHE:CE2	2.36	0.60
20:T:317:MET:HE3	20:T:362:PHE:HA	1.83	0.60
1:A:125:PHE:O	1:A:129:LEU:HD22	2.01	0.60
6:F:84:LYS:CB	6:F:94:LEU:HD23	2.31	0.60
1:A:1102:LYS:HD2	10:J:80:MET:HE3	1.84	0.60
11:K:23:ASN:O	11:K:303:ARG:NH2	2.34	0.60
8:H:85:LEU:HD11	8:H:101:LEU:HD11	1.84	0.60
9:I:49:THR:O	9:I:53:ILE:HG12	2.02	0.60
9:I:94:ALA:HA	9:I:97:ILE:HD12	1.83	0.60
3:C:514:ILE:HD11	7:G:61:LYS:HD3	1.83	0.60
6:F:84:LYS:HB2	6:F:94:LEU:HD23	1.83	0.60
1:A:1201:VAL:HG11	10:J:48:GLU:O	2.01	0.59
2:B:190:ILE:HG22	2:B:192:GLU:OE1	2.01	0.59
2:B:795:LEU:HD21	2:B:800:ARG:HA	1.83	0.59
11:K:241:LEU:HD23	11:K:241:LEU:H	1.68	0.59
1:A:1210:ALA:HB3	10:J:105:ARG:CZ	2.33	0.59
1:A:1232:LEU:HG	1:A:1236:MET:HE3	1.84	0.59
9:I:116:LEU:HD12	9:I:117:LEU:N	2.18	0.59
19:S:150:SER:O	19:S:154:MET:HE2	2.03	0.59
2:B:417:ASN:OD1	2:B:418:ALA:N	2.35	0.59
6:F:86:LYS:HE3	6:F:91:GLN:HG3	1.84	0.59
4:D:113:PRO:O	4:D:117:MET:HG2	2.03	0.58
18:R:287:LEU:HD13	19:S:150:SER:HB2	1.85	0.58
14:N:112:ASP:OD1	14:N:113:GLY:N	2.35	0.58
19:S:63:GLU:OE1	19:S:64:GLN:OE1	2.21	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:S:64:GLN:OE1	19:S:64:GLN:N	2.32	0.58
19:S:116:VAL:HG21	19:S:152:THR:OG1	2.02	0.58
8:H:39:VAL:HG12	8:H:41:ASN:H	1.68	0.58
1:A:1211:VAL:HG22	1:A:1212:ILE:H	1.69	0.58
13:M:156:VAL:CG2	13:M:190:VAL:HG21	2.31	0.58
6:F:286:PRO:HD3	6:F:313:TRP:CD2	2.39	0.58
1:A:492:VAL:O	1:A:492:VAL:HG12	2.03	0.58
4:D:376:LEU:O	5:E:222:ARG:NH2	2.36	0.58
2:B:249:GLN:OE1	10:J:4:PHE:CD2	2.57	0.58
7:G:80:GLU:OE1	7:G:80:GLU:N	2.36	0.58
1:A:27:GLU:OE1	1:A:27:GLU:N	2.36	0.57
1:A:367:THR:HG22	1:A:368:VAL:N	2.18	0.57
7:G:64:LEU:O	7:G:68:MET:SD	2.62	0.57
6:F:82:ALA:HA	6:F:94:LEU:HD13	1.85	0.57
1:A:527:ALA:O	1:A:528:ASN:ND2	2.37	0.57
3:C:345:LEU:HD12	3:C:522:LEU:HD12	1.87	0.57
2:B:344:LEU:O	2:B:344:LEU:HD23	2.03	0.57
2:B:1085:LEU:HD12	2:B:1086:LEU:H	1.68	0.57
1:A:1134:LEU:HD11	1:A:1171:ALA:HA	1.87	0.57
4:D:145:ARG:HD3	4:D:153:GLN:HB2	1.86	0.57
11:K:267:VAL:HG13	11:K:268:GLN:OE1	2.05	0.57
1:A:292:VAL:O	1:A:296:HIS:HB3	2.04	0.57
3:C:385:MET:SD	6:F:241:THR:HG21	2.45	0.57
6:F:188:LEU:HD11	6:F:270:TYR:HB3	1.87	0.57
10:J:95:TYR:O	10:J:106:TRP:N	2.38	0.57
19:S:53:VAL:HG23	19:S:57:ARG:HE	1.70	0.57
1:A:1092:ASP:HB3	10:J:99:ASN:CB	2.34	0.57
4:D:250:SER:HA	4:D:253:GLU:OE1	2.05	0.57
6:F:84:LYS:NZ	6:F:95:VAL:HG23	2.20	0.57
19:S:384:ILE:HD12	19:S:384:ILE:H	1.70	0.57
2:B:530:GLU:OE1	2:B:530:GLU:N	2.34	0.57
24:Y:-30:DT:H2"	24:Y:-29:DA:H8	1.70	0.57
3:C:9:CYS:O	3:C:13:LEU:HG	2.05	0.56
3:C:53:ALA:O	3:C:56:VAL:HG12	2.03	0.56
3:C:505:ASN:HB3	6:F:314:LEU:HD13	1.86	0.56
18:R:286:GLU:OE2	19:S:221:HIS:NE2	2.39	0.56
1:A:4:GLU:N	1:A:4:GLU:OE1	2.38	0.56
1:A:1109:LEU:HA	10:J:48:GLU:HA	1.86	0.56
3:C:255:VAL:HG21	3:C:267:VAL:HG21	1.87	0.56
6:F:167:TYR:HA	6:F:172:PHE:HA	1.86	0.56
2:B:379:LYS:HA	2:B:379:LYS:HE2	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:42:MET:O	6:F:42:MET:HG3	2.05	0.56
6:F:243:ILE:HA	6:F:248:VAL:HG11	1.86	0.56
22:W:149:TYR:CD2	25:Z:310:LEU:HB2	2.41	0.56
15:O:37:MET:SD	15:O:127:GLY:HA3	2.46	0.56
2:B:529:GLU:OE2	2:B:533:TYR:CZ	2.58	0.56
6:F:78:ASP:O	6:F:81:ASN:N	2.38	0.56
24:Y:-18:DG:H1'	24:Y:-17:DA:C8	2.41	0.56
13:M:62:VAL:HG12	13:M:71:GLN:HA	1.89	0.56
15:O:52:LEU:O	15:O:52:LEU:HD23	2.06	0.56
19:S:15:LEU:HB3	19:S:26:LEU:HD11	1.87	0.56
1:A:223:VAL:HB	1:A:227:PHE:CE1	2.39	0.55
1:A:1199:VAL:HG13	1:A:1200:VAL:N	2.22	0.55
23:X:33:DG:H3'	23:X:34:DC:H5"	1.88	0.55
1:A:724:CYS:SG	1:A:752:ILE:HD12	2.46	0.55
2:B:240:PHE:O	2:B:245:VAL:HG22	2.07	0.55
4:D:151:THR:HG23	4:D:151:THR:O	2.07	0.55
19:S:282:TRP:CH2	22:W:209:LEU:HD23	2.40	0.55
19:S:401:ASP:HB3	20:T:362:PHE:HB3	1.88	0.55
1:A:1099:ARG:CZ	10:J:79:PHE:HA	2.36	0.55
2:B:39:LEU:O	2:B:41:LYS:N	2.39	0.55
18:R:284:GLU:OE2	18:R:287:LEU:N	2.37	0.55
2:B:265:PHE:C	2:B:267:PRO:HD2	2.27	0.55
8:H:54:LEU:CD2	8:H:70:VAL:HG12	2.36	0.55
13:M:143:GLU:OE2	13:M:144:LEU:CD2	2.54	0.55
18:R:274:VAL:O	18:R:278:GLN:OE1	2.24	0.55
1:A:357:SER:OG	2:B:1049:GLU:OE1	2.24	0.55
1:A:544:ASP:OD1	1:A:544:ASP:O	2.25	0.55
1:A:1199:VAL:HG12	10:J:46:LEU:HA	1.88	0.55
2:B:30:LEU:HD23	2:B:34:LEU:HD23	1.88	0.55
3:C:473:SER:HB2	3:C:474:MET:HE1	1.87	0.55
4:D:119:LYS:O	4:D:123:TRP:HD1	1.89	0.55
5:E:49:ILE:HG22	5:E:208:LEU:HD23	1.89	0.55
3:C:25:GLY:O	3:C:29:ILE:HG12	2.07	0.55
5:E:336:ASP:OD2	5:E:336:ASP:N	2.40	0.55
13:M:153:LYS:O	13:M:156:VAL:HG12	2.06	0.55
1:A:220:PRO:HA	1:A:223:VAL:HG22	1.87	0.55
1:A:267:VAL:HG22	19:S:49:ASN:OD1	2.07	0.55
19:S:176:TYR:CD2	19:S:226:ILE:HD13	2.42	0.55
1:A:25:PRO:O	1:A:28:MET:HG3	2.06	0.55
3:C:257:ASN:HB2	6:F:276:ILE:HA	1.89	0.54
4:D:138:ILE:HD12	4:D:138:ILE:H	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:351:ARG:HA	5:E:354:ASP:OD1	2.08	0.54
23:X:22:DA:H2'	23:X:23:DC:C6	2.42	0.54
1:A:1095:ALA:N	10:J:77:ALA:H	2.05	0.54
1:A:1137:ILE:O	1:A:1141:ARG:N	2.37	0.54
1:A:6:PHE:CD2	8:H:37:LYS:HD2	2.43	0.54
1:A:223:VAL:O	1:A:227:PHE:CD1	2.59	0.54
2:B:169:PHE:CE1	2:B:178:ILE:HD12	2.43	0.54
3:C:383:PHE:O	6:F:241:THR:HG22	2.06	0.54
3:C:429:LEU:H	3:C:429:LEU:HD23	1.73	0.54
6:F:250:MET:CE	6:F:252:ILE:HG22	2.38	0.54
1:A:5:GLN:HA	8:H:38:VAL:HG13	1.90	0.54
13:M:130:PHE:CD1	13:M:135:LEU:HD21	2.43	0.54
19:S:73:LEU:O	19:S:77:ARG:HG3	2.08	0.54
1:A:415:HIS:O	1:A:417:GLY:N	2.41	0.54
2:B:1049:GLU:O	2:B:1053:ASP:OD2	2.26	0.54
22:W:264:GLU:O	22:W:268:ASN:OD1	2.25	0.54
2:B:24:GLU:OE1	2:B:25:GLU:CD	2.46	0.53
18:R:263:ASP:OD1	18:R:264:VAL:N	2.41	0.53
1:A:1214:ILE:HG22	10:J:106:TRP:CH2	2.44	0.53
6:F:296:CYS:O	6:F:298:GLU:N	2.42	0.53
1:A:1092:ASP:HB2	1:A:1223:TYR:HB2	1.90	0.53
2:B:970:LYS:HE3	2:B:970:LYS:HA	1.91	0.53
4:D:145:ARG:HG2	4:D:151:THR:HA	1.90	0.53
1:A:1189:LEU:HD22	1:A:1189:LEU:H	1.73	0.53
1:A:281:MET:SD	1:A:281:MET:N	2.82	0.53
6:F:187:PHE:CE2	6:F:216:VAL:HG22	2.43	0.53
14:N:88:ASP:HB3	14:N:91:LEU:HD23	1.91	0.53
6:F:134:LYS:HA	6:F:153:TYR:CE1	2.44	0.53
22:W:187:TRP:HE3	22:W:191:LEU:HD23	1.74	0.53
6:F:298:GLU:HA	6:F:303:SER:HB2	1.91	0.53
16:P:15:MET:SD	16:P:15:MET:N	2.78	0.53
1:A:1048:MET:HE3	1:A:1066:GLY:HA2	1.90	0.52
18:R:268:ILE:HD11	18:R:308:GLY:HA2	1.91	0.52
1:A:879:LEU:HD23	1:A:1293:LEU:HD13	1.91	0.52
1:A:1328:LEU:HD12	1:A:1328:LEU:H	1.75	0.52
2:B:227:HIS:HD2	2:B:230:LEU:CD2	2.22	0.52
13:M:173:ILE:HG22	13:M:208:LEU:O	2.10	0.52
23:X:14:DA:H5'	24:Y:-12:DA:H2	1.73	0.52
3:C:11:LEU:HD12	3:C:12:LEU:N	2.23	0.52
5:E:295:ALA:O	5:E:298:MET:HE3	2.09	0.52
13:M:190:VAL:HG22	13:M:208:LEU:HD21	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:267:VAL:HB	1:A:277:ASP:HA	1.91	0.52
2:B:458:GLN:N	2:B:458:GLN:OE1	2.42	0.52
19:S:75:ARG:HA	19:S:78:ASP:OD2	2.09	0.52
1:A:768:LEU:HB3	1:A:769:ARG:NH1	2.24	0.52
2:B:222:ARG:HD3	2:B:267:PRO:O	2.09	0.52
3:C:145:SER:O	3:C:149:VAL:HG13	2.10	0.52
8:H:7:MET:HE1	9:I:1:MET:SD	2.50	0.52
19:S:197:LYS:H	19:S:197:LYS:HD2	1.74	0.52
2:B:353:ASP:OD1	2:B:353:ASP:N	2.42	0.52
1:A:768:LEU:HD21	1:A:789:PHE:CD1	2.45	0.52
4:D:113:PRO:O	4:D:117:MET:HE2	2.10	0.52
6:F:200:GLN:O	6:F:205:GLN:N	2.43	0.52
8:H:85:LEU:HD12	8:H:86:ILE:H	1.75	0.52
12:L:94:GLU:N	12:L:94:GLU:OE1	2.42	0.52
1:A:776:SER:HB2	1:A:777:PRO:HD3	1.92	0.52
1:A:425:HIS:CD2	1:A:426:THR:HG23	2.44	0.52
1:A:1210:ALA:HB3	10:J:105:ARG:NH1	2.24	0.52
3:C:11:LEU:HD13	3:C:447:ILE:HD13	1.92	0.52
6:F:173:GLU:HG2	6:F:176:PHE:HB3	1.92	0.52
6:F:289:LEU:HD23	7:G:45:PRO:HA	1.91	0.52
1:A:221:LEU:HD11	1:A:310:TRP:CH2	2.45	0.51
4:D:116:MET:HB2	4:D:117:MET:HE2	1.92	0.51
4:D:371:GLY:C	5:E:208:LEU:HD13	2.31	0.51
6:F:303:SER:O	6:F:307:CYS:N	2.36	0.51
7:G:57:MET:HE3	7:G:57:MET:HA	1.90	0.51
18:R:254:LYS:HG3	18:R:256:GLN:HE21	1.75	0.51
1:A:104:ILE:HG22	1:A:238:LEU:HD11	1.92	0.51
3:C:383:PHE:HB3	6:F:244:TYR:CE2	2.45	0.51
21:U:63:TRP:CZ2	21:U:107:VAL:HG21	2.45	0.51
24:Y:-28:DA:H2'	24:Y:-27:DA:C8	2.45	0.51
1:A:121:GLU:HB3	1:A:125:PHE:CZ	2.46	0.51
1:A:428:MET:O	1:A:428:MET:SD	2.69	0.51
2:B:476:TRP:CZ3	2:B:664:LEU:HD21	2.44	0.51
3:C:531:MET:SD	3:C:533:ARG:N	2.78	0.51
4:D:373:MET:N	5:E:209:HIS:O	2.44	0.51
13:M:99:ILE:HG22	13:M:100:THR:N	2.24	0.51
19:S:251:CYS:SG	19:S:258:LEU:HD23	2.51	0.51
20:T:307:GLU:HG2	20:T:311:PHE:CZ	2.46	0.51
2:B:199:VAL:HG11	2:B:346:GLN:OE1	2.09	0.51
2:B:421:THR:OG1	2:B:423:ASN:OD1	2.19	0.51
2:B:946:LEU:HD23	2:B:946:LEU:C	2.30	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:438:ARG:HG3	6:F:293:PHE:CE2	2.45	0.51
19:S:276:MET:HE1	19:S:307:LEU:HB2	1.93	0.51
24:Y:-16:DC:H2'	24:Y:-15:DA:O4'	2.10	0.51
1:A:156:CYS:O	1:A:160:GLY:N	2.40	0.51
3:C:394:MET:HE3	3:C:394:MET:O	2.10	0.51
22:W:145:PHE:CD1	22:W:149:TYR:CE2	2.99	0.51
1:A:62:THR:HG21	1:A:67:ARG:O	2.11	0.51
1:A:1224:LYS:HB3	10:J:102:CYS:O	2.11	0.51
6:F:252:ILE:HG23	6:F:254:ALA:N	2.23	0.51
21:U:62:ALA:HA	21:U:65:TYR:CD2	2.46	0.51
4:D:123:TRP:CE3	10:J:37:LYS:HD2	2.45	0.51
6:F:266:HIS:CG	6:F:266:HIS:O	2.64	0.51
8:H:142:MET:SD	8:H:143:ASP:N	2.84	0.51
3:C:148:PHE:CZ	3:C:157:VAL:HG11	2.46	0.51
1:A:102:ILE:HA	1:A:105:LEU:HG	1.93	0.51
5:E:246:LEU:HD12	5:E:246:LEU:O	2.11	0.51
14:N:121:ASP:OD2	14:N:121:ASP:C	2.49	0.51
20:T:314:ALA:O	20:T:318:VAL:HG12	2.11	0.51
4:D:331:ILE:HD12	4:D:336:ARG:O	2.11	0.51
6:F:201:ASN:O	6:F:203:MET:N	2.44	0.51
19:S:122:VAL:O	19:S:125:THR:HG22	2.10	0.51
20:T:317:MET:CE	20:T:362:PHE:HA	2.41	0.51
25:Z:205:LEU:HD12	25:Z:342:LEU:HD12	1.93	0.51
1:A:675:GLU:N	1:A:675:GLU:OE1	2.43	0.50
1:A:1195:ASP:H	10:J:45:LYS:N	2.09	0.50
1:A:1308:LEU:HA	1:A:1311:MET:HE3	1.93	0.50
2:B:522:ASP:HB3	2:B:525:LEU:HD23	1.92	0.50
1:A:140:ARG:HA	1:A:140:ARG:HH11	1.75	0.50
1:A:492:VAL:O	1:A:492:VAL:CG1	2.59	0.50
1:A:717:LEU:HD11	1:A:721:TYR:CZ	2.47	0.50
23:X:22:DA:H2'	23:X:23:DC:O4'	2.11	0.50
5:E:106:GLN:HA	5:E:133:LEU:HD13	1.93	0.50
15:O:128:ASP:C	15:O:128:ASP:OD1	2.49	0.50
1:A:1222:LYS:C	1:A:1223:TYR:CD1	2.85	0.50
5:E:291:VAL:HG22	5:E:326:VAL:HG12	1.92	0.50
6:F:78:ASP:O	6:F:80:GLN:N	2.44	0.50
6:F:243:ILE:N	6:F:270:TYR:OH	2.44	0.50
24:Y:-49:DA:H2'	24:Y:-48:DT:H72	1.94	0.50
1:A:1199:VAL:HG13	1:A:1200:VAL:H	1.76	0.50
2:B:63:GLU:OE1	2:B:64:LYS:N	2.45	0.50
3:C:258:ARG:HG2	6:F:276:ILE:HG21	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:39:VAL:HG11	8:H:42:VAL:HG22	1.94	0.50
8:H:39:VAL:CG1	8:H:42:VAL:HG22	2.42	0.50
16:P:15:MET:H	16:P:15:MET:CE	2.24	0.50
19:S:91:ASP:OD1	19:S:92:THR:N	2.45	0.50
24:Y:-29:DA:H2'	24:Y:-28:DA:H8	1.76	0.50
1:A:221:LEU:HD12	1:A:221:LEU:H	1.77	0.50
2:B:71:PRO:O	2:B:72:MET:HB3	2.11	0.50
2:B:222:ARG:CD	2:B:271:GLU:OE1	2.60	0.50
2:B:500:THR:HG22	2:B:501:HIS:N	2.26	0.50
3:C:346:ALA:HA	3:C:522:LEU:HD21	1.92	0.50
5:E:9:VAL:HG23	5:E:10:VAL:N	2.27	0.50
17:Q:65:LEU:C	17:Q:65:LEU:HD12	2.32	0.50
19:S:228:ALA:O	19:S:232:LEU:HG	2.12	0.50
5:E:370:GLU:OE1	5:E:370:GLU:N	2.37	0.50
6:F:251:THR:HB	6:F:268:LYS:HA	1.93	0.50
6:F:313:TRP:HZ2	7:G:48:LEU:HD11	1.77	0.50
20:T:325:ILE:O	20:T:329:PHE:HD1	1.95	0.50
3:C:411:LYS:HG2	3:C:421:PHE:CZ	2.46	0.50
8:H:193:PRO:O	9:I:99:LEU:HD11	2.12	0.50
24:Y:-16:DC:H2'	24:Y:-15:DA:C8	2.47	0.50
1:A:62:THR:HG22	1:A:64:GLU:H	1.76	0.50
2:B:325:GLU:CD	2:B:325:GLU:O	2.50	0.50
3:C:273:MET:H	3:C:273:MET:HE2	1.77	0.50
6:F:243:ILE:HB	6:F:248:VAL:HG11	1.94	0.50
7:G:40:ASP:OD2	7:G:41:THR:N	2.45	0.50
19:S:177:CYS:HA	19:S:180:PHE:CE2	2.46	0.50
1:A:368:VAL:HG12	1:A:369:ILE:N	2.27	0.49
2:B:131:LEU:HD12	2:B:132:PRO:HD2	1.94	0.49
3:C:270:MET:HA	3:C:273:MET:CE	2.42	0.49
6:F:280:THR:O	6:F:283:VAL:HG22	2.12	0.49
1:A:1201:VAL:HG22	1:A:1202:GLN:N	2.27	0.49
2:B:379:LYS:HD3	2:B:383:GLU:OE2	2.13	0.49
4:D:117:MET:HE2	4:D:117:MET:N	2.27	0.49
19:S:116:VAL:CG2	19:S:152:THR:OG1	2.60	0.49
23:X:24:DC:H2'	23:X:24:DC:O2	2.12	0.49
24:Y:-29:DA:H2'	24:Y:-28:DA:C8	2.47	0.49
1:A:278:ASP:HA	1:A:281:MET:HG2	1.93	0.49
1:A:1092:ASP:OD2	1:A:1223:TYR:CD1	2.66	0.49
2:B:1064:LEU:HD23	2:B:1064:LEU:H	1.77	0.49
3:C:473:SER:O	3:C:474:MET:SD	2.69	0.49
13:M:130:PHE:HB2	13:M:135:LEU:HD11	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:S:122:VAL:HA	19:S:125:THR:HG22	1.94	0.49
1:A:1195:ASP:O	10:J:46:LEU:HB3	2.11	0.49
3:C:257:ASN:CB	6:F:276:ILE:HA	2.42	0.49
5:E:196:LEU:H	5:E:196:LEU:HD22	1.78	0.49
18:R:256:GLN:HG2	24:Y:-26:DA:H4'	1.93	0.49
23:X:20:DA:H1'	23:X:21:DC:C6	2.48	0.49
1:A:652:LYS:HD2	1:A:652:LYS:C	2.33	0.49
1:A:1100:LEU:HB3	10:J:78:TYR:CZ	2.47	0.49
6:F:284:ARG:HA	7:G:46:VAL:O	2.12	0.49
11:K:330:MET:HG3	12:L:107:CYS:SG	2.52	0.49
13:M:130:PHE:HD1	13:M:135:LEU:HD21	1.77	0.49
1:A:321:ILE:HD12	2:B:1120:MET:SD	2.53	0.49
3:C:82:VAL:HG12	3:C:82:VAL:O	2.12	0.49
3:C:384:ALA:HA	6:F:241:THR:HB	1.94	0.49
18:R:303:LEU:HD21	24:Y:-29:DA:O4'	2.13	0.49
1:A:136:TYR:OH	1:A:1331:ALA:HA	2.13	0.49
1:A:331:ASN:HB2	1:A:332:MET:HE1	1.94	0.49
1:A:1273:TYR:O	1:A:1276:VAL:HG12	2.12	0.49
2:B:507:GLU:O	2:B:508:ASP:HB3	2.13	0.49
6:F:245:ASP:C	6:F:245:ASP:OD1	2.51	0.49
1:A:321:ILE:HG23	2:B:1120:MET:SD	2.53	0.49
1:A:1316:LEU:HD13	1:A:1348:ILE:HD11	1.95	0.49
2:B:86:ASP:C	2:B:86:ASP:OD2	2.51	0.49
3:C:409:ILE:HG13	3:C:421:PHE:HD1	1.77	0.49
24:Y:-30:DT:H2"	24:Y:-29:DA:H5'	1.94	0.49
21:U:40:THR:HG22	25:Z:122:PRO:HG2	1.94	0.49
25:Z:204:MET:HA	25:Z:342:LEU:O	2.13	0.49
1:A:1108:THR:O	10:J:49:VAL:N	2.46	0.48
2:B:417:ASN:O	2:B:421:THR:HG23	2.13	0.48
6:F:84:LYS:HA	6:F:86:LYS:HD2	1.95	0.48
18:R:191:GLU:HG3	20:T:321:ASP:HA	1.93	0.48
19:S:184:GLN:OE1	19:S:186:SER:HB3	2.12	0.48
2:B:1126:LEU:HD12	2:B:1126:LEU:C	2.34	0.48
3:C:106:ILE:HD13	3:C:125:VAL:HG21	1.95	0.48
25:Z:258:PHE:CD2	25:Z:271:SER:HB2	2.49	0.48
2:B:417:ASN:OD1	2:B:417:ASN:C	2.52	0.48
6:F:243:ILE:CA	6:F:248:VAL:HG11	2.43	0.48
6:F:244:TYR:O	6:F:245:ASP:CB	2.61	0.48
12:L:40:VAL:CG1	12:L:92:ALA:HB3	2.44	0.48
1:A:601:PHE:CZ	1:A:650:MET:CE	2.96	0.48
2:B:239:ILE:HD12	2:B:239:ILE:N	2.27	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:372:ALA:O	5:E:376:LYS:N	2.40	0.48
10:J:1:MET:SD	10:J:1:MET:C	2.92	0.48
21:U:84:GLY:HA2	25:Z:109:LEU:HD13	1.95	0.48
1:A:1153:ILE:HD11	1:A:1165:VAL:HG21	1.95	0.48
19:S:154:MET:HA	19:S:157:VAL:HG22	1.96	0.48
20:T:321:ASP:O	20:T:325:ILE:HG12	2.14	0.48
5:E:244:GLU:O	5:E:247:MET:SD	2.72	0.48
8:H:50:ASP:OD1	8:H:51:ILE:N	2.47	0.48
19:S:116:VAL:CG2	19:S:149:PHE:HA	2.43	0.48
21:U:42:PHE:CE1	21:U:55:THR:HG22	2.48	0.48
1:A:60:MET:CE	1:A:257:VAL:HG13	2.42	0.48
1:A:260:LEU:O	1:A:260:LEU:HD12	2.14	0.48
6:F:239:LEU:O	6:F:243:ILE:HG23	2.14	0.48
13:M:167:GLU:OE1	13:M:167:GLU:N	2.46	0.48
23:X:22:DA:N3	24:Y:-20:DG:N2	2.62	0.48
2:B:391:VAL:HG23	2:B:392:ILE:N	2.28	0.48
3:C:258:ARG:HG2	6:F:276:ILE:CG2	2.44	0.48
12:L:40:VAL:HG12	12:L:92:ALA:HB3	1.95	0.48
20:T:308:THR:HA	20:T:311:PHE:CD2	2.49	0.48
1:A:7:ARG:NH2	8:H:160:THR:OG1	2.46	0.48
2:B:270:GLU:HA	2:B:273:GLN:OE1	2.14	0.48
4:D:116:MET:HB2	4:D:117:MET:CE	2.44	0.48
4:D:373:MET:SD	4:D:374:THR:N	2.87	0.48
24:Y:-25:DT:H2'	24:Y:-24:DA:C8	2.49	0.48
1:A:136:TYR:HH	1:A:1334:PHE:HE2	1.53	0.47
2:B:794:MET:SD	2:B:794:MET:C	2.93	0.47
6:F:287:CYS:SG	28:F:401:SF4:S2	3.11	0.47
11:K:339:GLU:OE2	12:L:26:ALA:N	2.41	0.47
21:U:34:ARG:HG2	25:Z:111:CYS:SG	2.54	0.47
2:B:522:ASP:OD1	2:B:523:VAL:N	2.48	0.47
6:F:268:LYS:O	6:F:269:LEU:HD22	2.14	0.47
1:A:523:MET:SD	2:B:1058:TYR:CD2	3.07	0.47
1:A:860:ASP:C	1:A:860:ASP:OD1	2.52	0.47
2:B:1112:LEU:CD2	2:B:1116:GLU:OE2	2.62	0.47
3:C:130:THR:HA	3:C:133:MET:SD	2.53	0.47
5:E:111:THR:HA	5:E:114:TYR:CE1	2.49	0.47
8:H:33:LYS:NZ	8:H:34:LEU:HD22	2.29	0.47
24:Y:-27:DA:H2'	24:Y:-26:DA:C8	2.48	0.47
1:A:725:ASP:O	1:A:729:GLU:OE1	2.32	0.47
2:B:227:HIS:HD2	2:B:230:LEU:HD23	1.80	0.47
2:B:1112:LEU:HD23	2:B:1112:LEU:C	2.35	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1113:LEU:HA	2:B:1116:GLU:OE2	2.15	0.47
4:D:322:THR:O	5:E:17:LEU:HD23	2.14	0.47
6:F:42:MET:SD	6:F:45:ILE:HB	2.55	0.47
21:U:27:GLU:OE2	25:Z:103:VAL:HG13	2.14	0.47
2:B:384:MET:HA	2:B:387:ILE:HD12	1.97	0.47
10:J:49:VAL:O	10:J:49:VAL:HG13	2.13	0.47
13:M:18:MET:HE1	13:M:32:GLU:C	2.35	0.47
3:C:411:LYS:HG2	3:C:421:PHE:CE1	2.50	0.47
1:A:266:VAL:HG13	1:A:275:ASN:OD1	2.14	0.47
1:A:1117:ILE:HG22	10:J:41:ARG:HD2	1.95	0.47
1:A:1149:VAL:O	1:A:1153:ILE:HG12	2.15	0.47
1:A:1197:PRO:CD	10:J:45:LYS:HA	2.44	0.47
1:A:1306:PHE:N	1:A:1306:PHE:CD2	2.80	0.47
1:A:1327:HIS:N	1:A:1327:HIS:CD2	2.83	0.47
2:B:265:PHE:O	2:B:265:PHE:CD1	2.68	0.47
2:B:889:ARG:NH1	2:B:1015:MET:SD	2.80	0.47
2:B:1128:LEU:H	2:B:1128:LEU:HD23	1.80	0.47
3:C:448:GLU:HG3	6:F:298:GLU:HG3	1.97	0.47
6:F:251:THR:H	6:F:268:LYS:HG2	1.79	0.47
8:H:13:ILE:N	8:H:13:ILE:HD12	2.30	0.47
8:H:142:MET:HG3	8:H:145:GLY:H	1.80	0.47
13:M:59:THR:HB	13:M:73:PHE:CD1	2.49	0.47
13:M:199:THR:HG23	13:M:201:GLY:H	1.80	0.47
19:S:100:ALA:O	19:S:106:ILE:HD12	2.14	0.47
1:A:1120:VAL:HG11	1:A:1127:PHE:CE1	2.49	0.47
4:D:119:LYS:O	4:D:122:ASN:N	2.44	0.47
6:F:297:HIS:O	6:F:300:GLY:N	2.44	0.47
1:A:320:TYR:CD1	1:A:321:ILE:HD13	2.50	0.47
1:A:703:VAL:HG13	1:A:703:VAL:O	2.15	0.47
1:A:1067:VAL:HG12	1:A:1068:PRO:HD3	1.97	0.47
1:A:1109:LEU:O	10:J:83:GLN:NE2	2.48	0.47
1:A:1376:PRO:C	1:A:1377:LEU:HD12	2.34	0.47
6:F:303:SER:HB3	6:F:306:ASN:HD21	1.79	0.47
8:H:197:LEU:HD13	8:H:200:TRP:CH2	2.50	0.47
19:S:234:TRP:CH2	19:S:242:ARG:HG2	2.50	0.47
21:U:36:MET:SD	21:U:36:MET:C	2.92	0.47
1:A:275:ASN:N	19:S:51:ARG:HG3	2.30	0.47
1:A:1096:ASP:N	10:J:76:ARG:HA	2.30	0.47
1:A:1199:VAL:H	10:J:46:LEU:HA	1.78	0.47
2:B:1112:LEU:HD23	2:B:1116:GLU:OE2	2.15	0.47
5:E:423:TRP:HA	5:E:426:ILE:HG22	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:173:GLU:CG	6:F:176:PHE:HB3	2.45	0.47
6:F:188:LEU:HD11	6:F:270:TYR:CB	2.45	0.47
10:J:82:LEU:HD21	10:J:94:PHE:CD2	2.50	0.47
24:Y:-25:DT:H2'	24:Y:-24:DA:O4'	2.15	0.47
1:A:743:THR:HG22	1:A:746:GLU:OE2	2.15	0.46
2:B:815:CYS:O	16:P:46:LYS:HE2	2.14	0.46
11:K:235:LEU:HD23	11:K:302:VAL:O	2.14	0.46
19:S:103:HIS:HB2	19:S:106:ILE:CD1	2.45	0.46
19:S:197:LYS:H	19:S:197:LYS:CD	2.28	0.46
23:X:39:DC:H2"	23:X:40:DA:C8	2.51	0.46
1:A:769:ARG:HD2	1:A:769:ARG:H	1.79	0.46
1:A:1133:SER:HB2	1:A:1136:ARG:HG2	1.97	0.46
1:A:1223:TYR:CD2	10:J:104:HIS:CG	3.04	0.46
5:E:310:VAL:O	5:E:314:ILE:HG12	2.15	0.46
6:F:240:ASN:O	6:F:243:ILE:HG12	2.14	0.46
14:N:83:LEU:HD23	14:N:83:LEU:H	1.79	0.46
17:Q:31:GLU:OE1	17:Q:31:GLU:N	2.44	0.46
19:S:282:TRP:HB2	22:W:202:GLN:OE1	2.14	0.46
21:U:104:TRP:HH2	21:U:135:PHE:HB2	1.80	0.46
21:U:133:ARG:NH1	25:Z:64:ARG:O	2.46	0.46
1:A:116:MET:SD	1:A:116:MET:N	2.78	0.46
1:A:518:GLU:OE1	2:B:1060:ALA:CB	2.61	0.46
11:K:262:ILE:HD13	11:K:275:VAL:HA	1.96	0.46
13:M:73:PHE:O	13:M:103:LEU:HD12	2.16	0.46
25:Z:52:ARG:O	25:Z:56:ARG:N	2.44	0.46
2:B:231:SER:HA	2:B:292:ARG:CZ	2.45	0.46
3:C:258:ARG:NH2	3:C:318:ASP:OD2	2.48	0.46
7:G:57:MET:SD	7:G:57:MET:N	2.88	0.46
21:U:42:PHE:HE1	21:U:55:THR:HG22	1.81	0.46
23:X:43:DC:H2"	23:X:44:DA:C8	2.50	0.46
2:B:653:ASP:OD1	2:B:653:ASP:O	2.34	0.46
5:E:366:VAL:HG13	5:E:366:VAL:O	2.16	0.46
5:E:381:ASP:OD2	5:E:381:ASP:C	2.53	0.46
6:F:226:SER:HB3	6:F:230:LEU:HD13	1.97	0.46
7:G:61:LYS:HA	7:G:64:LEU:HG	1.97	0.46
8:H:7:MET:HB3	8:H:72:PHE:CZ	2.51	0.46
20:T:306:LYS:HE2	20:T:310:MET:HG2	1.98	0.46
2:B:222:ARG:HD2	2:B:271:GLU:OE1	2.15	0.46
2:B:284:LEU:CD2	2:B:306:ILE:HD12	2.46	0.46
5:E:106:GLN:HA	5:E:133:LEU:CD1	2.44	0.46
21:U:138:THR:O	25:Z:51:TRP:HZ2	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:W:149:TYR:CE1	25:Z:320:VAL:HG22	2.50	0.46
1:A:121:GLU:O	1:A:125:PHE:CD2	2.68	0.46
1:A:219:ASN:OD1	1:A:221:LEU:HD12	2.15	0.46
1:A:1110:LEU:O	1:A:1113:ILE:HG12	2.16	0.46
5:E:62:ILE:HD11	5:E:97:MET:HB3	1.97	0.46
6:F:251:THR:O	6:F:251:THR:CG2	2.63	0.46
19:S:79:LEU:HD12	19:S:79:LEU:O	2.16	0.46
19:S:138:ILE:HA	19:S:141:LEU:HG	1.97	0.46
24:Y:-30:DT:C2	24:Y:-29:DA:C8	3.03	0.46
1:A:1097:TYR:CG	1:A:1097:TYR:O	2.68	0.46
2:B:407:ARG:HH22	19:S:78:ASP:HA	1.81	0.46
4:D:367:ASP:OD1	4:D:368:SER:N	2.48	0.46
6:F:244:TYR:O	6:F:245:ASP:HB3	2.16	0.46
14:N:112:ASP:OD1	14:N:112:ASP:C	2.53	0.46
15:O:51:ASP:OD1	15:O:51:ASP:C	2.52	0.46
19:S:103:HIS:HB2	19:S:106:ILE:HG13	1.97	0.46
19:S:147:ASP:N	19:S:147:ASP:OD2	2.48	0.46
19:S:180:PHE:CB	19:S:182:LEU:HG	2.46	0.46
1:A:360:ARG:CZ	2:B:1037:GLU:HG2	2.46	0.46
1:A:1110:LEU:HG	1:A:1113:ILE:HD11	1.97	0.46
1:A:1140:LEU:HD22	10:J:82:LEU:CA	2.46	0.46
2:B:264:ALA:O	2:B:267:PRO:HD2	2.15	0.46
3:C:387:PRO:HA	6:F:172:PHE:CD2	2.51	0.46
6:F:82:ALA:N	6:F:94:LEU:HD13	2.31	0.46
9:I:113:ILE:O	9:I:116:LEU:HG	2.16	0.46
19:S:200:MET:SD	19:S:204:THR:OG1	2.74	0.46
1:A:709:LEU:O	1:A:709:LEU:HD23	2.16	0.46
2:B:385:LYS:HD3	2:B:385:LYS:C	2.36	0.46
6:F:286:PRO:HD3	6:F:313:TRP:CE2	2.51	0.46
6:F:313:TRP:HA	6:F:316:PHE:CE2	2.51	0.46
19:S:304:ARG:O	19:S:308:VAL:HG13	2.15	0.46
1:A:15:ILE:CD1	2:B:1104:LEU:HD21	2.45	0.45
1:A:1069:ARG:NH1	1:A:1072:GLU:OE2	2.49	0.45
6:F:239:LEU:O	6:F:270:TYR:OH	2.34	0.45
12:L:123:ASP:OD2	12:L:123:ASP:C	2.54	0.45
19:S:234:TRP:CD2	19:S:250:PHE:CE1	3.03	0.45
20:T:328:LEU:HD13	20:T:371:LEU:HD21	1.98	0.45
1:A:303:THR:O	1:A:307:MET:HE2	2.17	0.45
1:A:1382:ASN:HA	1:A:1385:HIS:CE1	2.51	0.45
2:B:222:ARG:CG	2:B:268:SER:HA	2.46	0.45
3:C:287:PRO:HA	3:C:333:MET:HE1	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:326:VAL:CG1	5:E:15:VAL:HG23	2.47	0.45
5:E:16:TYR:O	5:E:126:LEU:HD12	2.16	0.45
5:E:36:SER:OG	5:E:37:MET:CE	2.64	0.45
7:G:110:MET:SD	7:G:110:MET:N	2.88	0.45
19:S:204:THR:HG21	19:S:230:THR:HG22	1.98	0.45
22:W:149:TYR:OH	25:Z:309:TYR:N	2.49	0.45
25:Z:193:HIS:O	25:Z:193:HIS:CG	2.69	0.45
1:A:1099:ARG:CB	10:J:78:TYR:O	2.63	0.45
1:A:1110:LEU:HD13	1:A:1195:ASP:O	2.17	0.45
3:C:7:LYS:O	3:C:7:LYS:HD3	2.17	0.45
6:F:84:LYS:HD3	6:F:86:LYS:HD3	1.97	0.45
6:F:286:PRO:O	6:F:287:CYS:C	2.55	0.45
13:M:110:MET:HE1	13:M:115:LYS:HA	1.98	0.45
18:R:212:LEU:C	18:R:213:ILE:HD13	2.36	0.45
19:S:214:THR:O	19:S:357:LEU:HD23	2.17	0.45
1:A:263:ARG:O	1:A:263:ARG:HG3	2.15	0.45
1:A:1207:VAL:HG12	1:A:1208:SER:N	2.32	0.45
2:B:72:MET:O	2:B:72:MET:SD	2.75	0.45
2:B:115:VAL:CB	2:B:133:ILE:HD11	2.45	0.45
6:F:226:SER:CB	6:F:230:LEU:HD13	2.46	0.45
6:F:298:GLU:HA	6:F:303:SER:HA	1.97	0.45
15:O:136:GLU:OE1	15:O:136:GLU:HA	2.16	0.45
16:P:15:MET:H	16:P:15:MET:HE3	1.81	0.45
18:R:283:TYR:CE1	18:R:285:PRO:HD3	2.52	0.45
19:S:99:GLN:HA	19:S:102:ARG:HH21	1.82	0.45
23:X:54:DT:C6	23:X:55:DT:H72	2.52	0.45
1:A:1069:ARG:O	1:A:1072:GLU:HG2	2.17	0.45
1:A:1096:ASP:O	10:J:76:ARG:HB3	2.16	0.45
2:B:24:GLU:OE1	2:B:24:GLU:C	2.55	0.45
19:S:91:ASP:O	19:S:94:VAL:HG12	2.17	0.45
1:A:105:LEU:HD12	1:A:106:GLN:N	2.31	0.45
1:A:1134:LEU:HD12	1:A:1134:LEU:N	2.28	0.45
3:C:406:LEU:HD12	3:C:407:GLN:N	2.31	0.45
4:D:153:GLN:CD	4:D:154:ILE:HG23	2.37	0.45
6:F:200:GLN:O	6:F:201:ASN:C	2.54	0.45
6:F:203:MET:N	6:F:203:MET:SD	2.89	0.45
6:F:314:LEU:HD23	6:F:314:LEU:HA	1.68	0.45
8:H:29:GLU:O	8:H:32:LYS:HG2	2.17	0.45
21:U:50:GLU:HA	21:U:53:MET:SD	2.57	0.45
1:A:303:THR:HG23	1:A:307:MET:CE	2.47	0.45
1:A:662:ASN:O	1:A:665:TYR:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:404:LYS:HD2	19:S:141:LEU:HA	1.98	0.45
6:F:295:ASP:OD2	6:F:295:ASP:N	2.50	0.45
7:G:46:VAL:HG13	7:G:47:PRO:HD2	1.99	0.45
24:Y:-24:DA:H2'	24:Y:-23:DG:O4'	2.17	0.45
2:B:800:ARG:HA	2:B:800:ARG:HE	1.81	0.45
5:E:6:ASP:N	5:E:6:ASP:OD1	2.50	0.45
9:I:100:MET:CE	9:I:101:VAL:HG23	2.42	0.45
13:M:190:VAL:HG22	13:M:208:LEU:HD23	1.98	0.45
2:B:40:VAL:O	2:B:40:VAL:HG22	2.17	0.45
2:B:222:ARG:HH11	2:B:222:ARG:HB3	1.80	0.45
2:B:1082:GLN:OE1	2:B:1095:CYS:SG	2.74	0.45
6:F:82:ALA:CA	6:F:94:LEU:HD13	2.46	0.45
18:R:189:ASN:HA	20:T:320:THR:HG22	1.98	0.45
19:S:78:ASP:OD1	19:S:79:LEU:N	2.49	0.45
24:Y:-59:DT:O2	24:Y:-58:DA:N6	2.50	0.45
1:A:143:LYS:HE2	1:A:1333:TYR:OH	2.17	0.45
2:B:724:THR:O	2:B:728:ILE:HG12	2.16	0.45
3:C:364:ARG:HA	6:F:245:ASP:HB3	1.98	0.45
5:E:45:LEU:HD11	5:E:61:ALA:HB2	1.98	0.45
5:E:320:LEU:H	5:E:320:LEU:HD23	1.82	0.45
6:F:298:GLU:O	6:F:303:SER:HB2	2.16	0.45
22:W:380:GLU:HA	25:Z:360:TYR:CE1	2.52	0.45
1:A:1117:ILE:CG2	10:J:41:ARG:HD2	2.46	0.44
6:F:176:PHE:HA	6:F:179:VAL:HG12	1.99	0.44
15:O:8:ASP:OD1	15:O:9:ILE:N	2.49	0.44
18:R:202:MET:N	18:R:211:ALA:O	2.47	0.44
25:Z:289:GLN:NE2	25:Z:289:GLN:N	2.65	0.44
2:B:527:CYS:SG	2:B:528:GLY:N	2.90	0.44
13:M:111:THR:HG23	13:M:114:ALA:H	1.82	0.44
15:O:54:ASP:OD1	15:O:54:ASP:N	2.49	0.44
16:P:30:SER:HB2	16:P:32:ASP:OD1	2.17	0.44
23:X:53:DT:C6	23:X:53:DT:OP2	2.70	0.44
25:Z:48:GLY:HA3	25:Z:180:LEU:HD11	1.99	0.44
25:Z:211:LYS:HG2	25:Z:297:THR:HG22	1.98	0.44
5:E:320:LEU:HA	5:E:325:TRP:HA	1.99	0.44
6:F:248:VAL:CG2	6:F:268:LYS:HB2	2.47	0.44
14:N:124:ILE:HD12	14:N:124:ILE:H	1.81	0.44
1:A:1119:GLU:HB3	1:A:1121:PHE:CE1	2.52	0.44
2:B:236:ILE:HA	2:B:239:ILE:HD13	1.99	0.44
3:C:269:THR:O	3:C:272:ARG:N	2.44	0.44
3:C:368:LEU:HG	6:F:244:TYR:CD2	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:261:THR:HG22	4:D:262:LYS:N	2.32	0.44
7:G:64:LEU:HD12	7:G:65:ARG:N	2.32	0.44
13:M:126:ILE:C	13:M:127:LEU:HD22	2.38	0.44
19:S:205:MET:SD	19:S:206:GLN:N	2.91	0.44
21:U:63:TRP:CH2	21:U:107:VAL:HG21	2.53	0.44
1:A:105:LEU:HA	1:A:108:ILE:HG22	2.00	0.44
1:A:601:PHE:CZ	1:A:650:MET:HE1	2.52	0.44
1:A:1092:ASP:O	10:J:77:ALA:HB2	2.17	0.44
1:A:1134:LEU:H	1:A:1134:LEU:CD1	2.27	0.44
2:B:259:GLU:O	2:B:262:MET:SD	2.75	0.44
2:B:774:ASN:OD1	2:B:774:ASN:C	2.56	0.44
3:C:139:MET:HE2	3:C:143:GLU:OE2	2.18	0.44
6:F:42:MET:O	6:F:42:MET:CG	2.65	0.44
6:F:91:GLN:HB3	6:F:126:ILE:HG13	1.98	0.44
6:F:230:LEU:HD12	6:F:235:ILE:HB	1.98	0.44
10:J:96:LYS:HA	10:J:105:ARG:HA	2.00	0.44
11:K:194:HIS:O	11:K:195:ASP:HB3	2.18	0.44
19:S:280:LEU:HD13	19:S:283:LEU:HD12	1.99	0.44
23:X:34:DC:O2	23:X:34:DC:O4'	2.35	0.44
1:A:1096:ASP:H	10:J:76:ARG:HA	1.83	0.44
1:A:1280:MET:SD	1:A:1280:MET:N	2.91	0.44
2:B:680:SER:OG	2:B:681:PRO:HD3	2.18	0.44
2:B:743:VAL:O	2:B:743:VAL:CG2	2.65	0.44
6:F:286:PRO:HB3	6:F:313:TRP:CB	2.48	0.44
2:B:284:LEU:HD21	2:B:306:ILE:HA	1.99	0.44
10:J:3:LEU:HB3	10:J:12:LEU:HD12	2.00	0.44
11:K:58:GLU:OE2	11:K:58:GLU:N	2.34	0.44
18:R:168:ILE:HG21	18:R:227:GLU:HA	1.99	0.44
21:U:37:LYS:HZ2	25:Z:111:CYS:HB2	1.83	0.44
2:B:284:LEU:HA	2:B:287:ILE:HG22	2.00	0.44
6:F:234:ASP:O	6:F:238:ILE:HG22	2.18	0.44
6:F:279:PRO:CB	7:G:46:VAL:HG11	2.48	0.44
11:K:133:THR:HG23	11:K:135:ILE:HG22	1.99	0.44
1:A:296:HIS:NE2	1:A:306:ILE:HD13	2.33	0.44
1:A:883:CYS:SG	1:A:884:SER:N	2.91	0.44
2:B:306:ILE:HG22	2:B:307:GLU:N	2.33	0.44
21:U:16:SER:O	21:U:20:GLU:HG2	2.18	0.44
2:B:39:LEU:C	2:B:41:LYS:H	2.21	0.43
10:J:53:LEU:O	10:J:57:ALA:HB2	2.18	0.43
16:P:27:GLU:O	16:P:28:ILE:HD13	2.17	0.43
18:R:157:GLY:CA	18:R:158:PRO:CG	2.92	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:R:204:ILE:HG23	18:R:237:TYR:CE1	2.53	0.43
23:X:17:DG:C8	23:X:18:DT:H72	2.53	0.43
2:B:77:TYR:C	2:B:78:LEU:HD12	2.39	0.43
2:B:607:THR:HG22	2:B:608:ASN:N	2.33	0.43
4:D:320:ASP:C	4:D:321:LEU:HD22	2.39	0.43
19:S:112:GLN:N	19:S:112:GLN:OE1	2.51	0.43
19:S:135:MET:HA	19:S:138:ILE:CG2	2.48	0.43
1:A:1371:ASN:O	1:A:1371:ASN:ND2	2.52	0.43
15:O:11:ASP:O	15:O:11:ASP:OD1	2.37	0.43
18:R:270:LEU:O	18:R:274:VAL:HG12	2.18	0.43
19:S:197:LYS:HD2	19:S:197:LYS:N	2.33	0.43
1:A:117:LEU:HD13	1:A:125:PHE:HE2	1.83	0.43
1:A:1187:TYR:CE2	10:J:13:ILE:HG22	2.54	0.43
1:A:1197:PRO:HD2	10:J:45:LYS:HA	2.00	0.43
2:B:524:ASN:OD1	2:B:525:LEU:HD22	2.18	0.43
6:F:168:SER:O	6:F:169:ASP:HB3	2.17	0.43
8:H:4:LEU:HD23	8:H:4:LEU:C	2.38	0.43
12:L:119:LYS:HD2	12:L:119:LYS:O	2.18	0.43
25:Z:261:ASP:HA	25:Z:293:MET:HG2	2.01	0.43
1:A:143:LYS:O	1:A:146:ILE:HG13	2.18	0.43
1:A:1224:LYS:HD3	10:J:102:CYS:O	2.19	0.43
2:B:821:VAL:HG12	2:B:864:SER:O	2.17	0.43
5:E:107:THR:HG23	5:E:108:THR:N	2.33	0.43
6:F:93:LYS:HA	6:F:96:TYR:HB3	2.00	0.43
7:G:71:MET:HB2	7:G:72:PRO:HD2	2.01	0.43
19:S:70:GLN:HA	19:S:73:LEU:HG	2.00	0.43
22:W:149:TYR:HE1	25:Z:320:VAL:HG22	1.84	0.43
22:W:192:LEU:O	22:W:196:VAL:HG23	2.19	0.43
23:X:22:DA:H2'	23:X:23:DC:H6	1.83	0.43
1:A:293:ILE:HD12	1:A:296:HIS:HD2	1.84	0.43
1:A:687:ALA:HB3	1:A:688:PRO:HD3	2.01	0.43
3:C:55:CYS:HA	3:C:58:VAL:HG12	2.01	0.43
3:C:364:ARG:HA	6:F:245:ASP:CB	2.48	0.43
6:F:273:VAL:O	6:F:274:ASN:C	2.56	0.43
10:J:4:PHE:HA	10:J:10:ASN:O	2.18	0.43
23:X:58:DT:C6	23:X:59:DT:H72	2.53	0.43
25:Z:340:TYR:CD1	25:Z:342:LEU:HD21	2.53	0.43
1:A:303:THR:HG23	1:A:307:MET:HE2	2.01	0.43
1:A:1199:VAL:N	10:J:46:LEU:HA	2.34	0.43
3:C:270:MET:HA	3:C:273:MET:HE3	2.01	0.43
6:F:300:GLY:O	6:F:301:GLU:C	2.56	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:48:LEU:HD12	8:H:48:LEU:C	2.39	0.43
9:I:73:LEU:HD21	9:I:86:LEU:HD12	2.00	0.43
20:T:306:LYS:HE3	20:T:374:VAL:CG1	2.48	0.43
20:T:315:ILE:HD12	20:T:355:ALA:HB1	2.01	0.43
1:A:731:LEU:HD23	1:A:748:LEU:HD22	2.00	0.43
11:K:54:VAL:HG13	11:K:55:HIS:N	2.34	0.43
12:L:46:GLU:O	12:L:46:GLU:HG2	2.18	0.43
15:O:128:ASP:OD1	15:O:128:ASP:O	2.36	0.43
18:R:191:GLU:OE1	18:R:201:ILE:HB	2.19	0.43
19:S:283:LEU:CD1	19:S:300:LEU:HD21	2.49	0.43
11:K:248:GLU:O	11:K:251:GLU:N	2.52	0.43
18:R:295:MET:SD	18:R:300:ILE:HB	2.59	0.43
19:S:401:ASP:HB3	20:T:362:PHE:O	2.18	0.43
1:A:223:VAL:O	1:A:227:PHE:HD1	1.99	0.43
1:A:460:VAL:HG23	1:A:460:VAL:O	2.18	0.43
3:C:367:ARG:HB2	6:F:245:ASP:HA	2.01	0.43
3:C:452:PHE:CD1	6:F:305:SER:HB2	2.54	0.43
4:D:145:ARG:CZ	4:D:145:ARG:HA	2.49	0.43
6:F:306:ASN:O	6:F:307:CYS:C	2.57	0.43
13:M:143:GLU:OE2	13:M:143:GLU:C	2.57	0.43
19:S:223:LEU:HA	19:S:226:ILE:HG22	2.00	0.43
1:A:122:LYS:HA	1:A:125:PHE:CD2	2.54	0.42
1:A:1067:VAL:CG1	1:A:1068:PRO:HD3	2.49	0.42
1:A:1193:LYS:HA	10:J:44:PRO:HB3	2.00	0.42
4:D:327:GLY:C	5:E:15:VAL:HG22	2.40	0.42
20:T:306:LYS:HE3	20:T:374:VAL:HG12	2.01	0.42
22:W:364:MET:HG2	22:W:371:PRO:CG	2.49	0.42
22:W:378:TYR:OH	25:Z:410:PHE:CE2	2.68	0.42
1:A:415:HIS:O	1:A:453:HIS:ND1	2.51	0.42
1:A:905:ASP:OD1	1:A:905:ASP:N	2.52	0.42
1:A:983:THR:HG21	1:A:1004:ASP:OD1	2.19	0.42
1:A:1325:ALA:O	1:A:1329:PHE:CE2	2.72	0.42
5:E:21:LEU:HD11	5:E:224:TYR:HB2	2.01	0.42
6:F:217:TRP:CD1	6:F:230:LEU:HG	2.54	0.42
10:J:4:PHE:CD1	10:J:4:PHE:N	2.87	0.42
18:R:191:GLU:CG	20:T:321:ASP:HA	2.48	0.42
1:A:736:LEU:C	1:A:736:LEU:HD23	2.39	0.42
1:A:1185:MET:HG2	1:A:1187:TYR:H	1.84	0.42
2:B:659:ILE:O	2:B:660:GLU:HG2	2.20	0.42
6:F:165:ALA:HB3	6:F:234:ASP:OD2	2.20	0.42
12:L:71:THR:HG23	12:L:71:THR:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:O:64:LEU:HD13	15:O:142:TYR:CD2	2.54	0.42
15:O:143:LEU:HD23	15:O:143:LEU:C	2.39	0.42
22:W:149:TYR:OH	25:Z:309:TYR:O	2.36	0.42
22:W:308:ILE:HG13	22:W:320:ILE:HG23	2.00	0.42
1:A:280:THR:O	1:A:284:THR:HG23	2.18	0.42
1:A:1121:PHE:HD1	1:A:1121:PHE:H	1.67	0.42
2:B:722:THR:HG22	2:B:723:LYS:N	2.34	0.42
3:C:4:ALA:O	3:C:8:LEU:HG	2.19	0.42
13:M:99:ILE:HG22	13:M:100:THR:H	1.85	0.42
18:R:171:THR:HG22	18:R:220:VAL:HA	2.01	0.42
19:S:175:THR:CG2	19:S:176:TYR:N	2.81	0.42
1:A:518:GLU:OE1	2:B:1060:ALA:CA	2.66	0.42
1:A:1377:LEU:HD12	1:A:1377:LEU:N	2.35	0.42
4:D:360:LEU:HG	4:D:376:LEU:HB2	2.01	0.42
6:F:44:HIS:CE1	6:F:45:ILE:HG13	2.55	0.42
11:K:251:GLU:O	11:K:255:ARG:HG2	2.20	0.42
19:S:53:VAL:HG23	19:S:57:ARG:NE	2.33	0.42
19:S:85:LEU:HB3	19:S:89:PHE:HD2	1.84	0.42
21:U:1:MET:HE1	21:U:53:MET:HE2	2.02	0.42
23:X:33:DG:H3'	23:X:34:DC:C5'	2.48	0.42
1:A:305:MET:SD	1:A:306:ILE:N	2.92	0.42
1:A:788:SER:O	1:A:792:ILE:HD12	2.20	0.42
1:A:1188:VAL:HG13	1:A:1192:LEU:HD11	2.00	0.42
1:A:1195:ASP:H	10:J:44:PRO:HB2	1.84	0.42
2:B:753:ASP:OD1	2:B:753:ASP:N	2.52	0.42
3:C:269:THR:O	3:C:273:MET:HE2	2.20	0.42
6:F:94:LEU:HD12	6:F:94:LEU:HA	1.93	0.42
6:F:297:HIS:O	6:F:298:GLU:C	2.57	0.42
8:H:84:ILE:HG23	8:H:151:ARG:HE	1.84	0.42
1:A:1340:VAL:HG23	1:A:1340:VAL:O	2.20	0.42
2:B:33:PHE:HD1	2:B:34:LEU:HD22	1.84	0.42
2:B:436:VAL:HG13	2:B:437:THR:HG23	2.01	0.42
4:D:360:LEU:HD11	5:E:25:LEU:HD11	2.02	0.42
23:X:37:DT:H2'	23:X:38:DT:C6	2.55	0.42
1:A:117:LEU:HD23	1:A:153:LYS:HE2	2.02	0.42
1:A:1100:LEU:HB3	10:J:78:TYR:OH	2.19	0.42
1:A:1118:GLU:O	10:J:41:ARG:NE	2.53	0.42
2:B:281:MET:SD	2:B:306:ILE:HD12	2.60	0.42
2:B:824:LYS:HD3	2:B:824:LYS:HA	1.86	0.42
9:I:86:LEU:HD21	9:I:100:MET:CE	2.50	0.42
11:K:94:VAL:HG13	11:K:94:VAL:O	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:72:MET:HE3	13:M:101:ARG:HB2	2.01	0.42
19:S:16:VAL:HG23	19:S:16:VAL:O	2.19	0.42
21:U:37:LYS:NZ	25:Z:111:CYS:HB2	2.34	0.42
24:Y:-23:DG:H2'	24:Y:-22:DG:C8	2.54	0.42
1:A:464:ARG:HA	1:A:505:MET:HE3	2.02	0.42
1:A:704:THR:O	1:A:704:THR:HG23	2.20	0.42
1:A:1104:ARG:HB3	10:J:54:GLY:HA2	2.02	0.42
2:B:30:LEU:HB3	2:B:31:PRO:HD3	2.00	0.42
2:B:383:GLU:OE1	2:B:383:GLU:HA	2.19	0.42
3:C:269:THR:HG22	3:C:273:MET:CE	2.49	0.42
5:E:276:LEU:HG	5:E:281:GLN:HG3	2.01	0.42
6:F:180:LEU:CD2	6:F:238:ILE:HD13	2.50	0.42
19:S:401:ASP:HA	19:S:404:ARG:HG2	2.02	0.42
1:A:1093:ASP:HB2	10:J:74:HIS:O	2.19	0.42
1:A:1347:ILE:CD1	2:B:1064:LEU:HD12	2.48	0.42
2:B:39:LEU:O	2:B:40:VAL:HG12	2.19	0.42
2:B:477:GLY:HA3	2:B:594:ARG:HH12	1.85	0.42
4:D:356:PHE:CD1	4:D:356:PHE:C	2.92	0.42
6:F:174:SER:HA	6:F:177:VAL:HG22	2.02	0.42
6:F:235:ILE:O	6:F:239:LEU:HG	2.19	0.42
9:I:3:VAL:O	9:I:3:VAL:HG23	2.20	0.42
13:M:118:LEU:O	13:M:118:LEU:HG	2.19	0.42
18:R:301:VAL:HG21	24:Y:-28:DA:H5'	2.02	0.42
21:U:137:PHE:CD1	25:Z:55:LEU:HD11	2.55	0.42
1:A:55:VAL:HG12	1:A:56:LEU:N	2.35	0.41
1:A:289:LEU:HD21	1:A:313:LEU:HB2	2.02	0.41
1:A:331:ASN:OD1	1:A:331:ASN:N	2.50	0.41
1:A:1099:ARG:HB3	10:J:78:TYR:O	2.19	0.41
1:A:1140:LEU:HA	10:J:81:GLN:O	2.19	0.41
2:B:163:LEU:N	2:B:163:LEU:HD12	2.34	0.41
2:B:182:GLU:HG2	2:B:183:GLN:N	2.35	0.41
2:B:258:GLU:O	2:B:261:VAL:HG12	2.19	0.41
2:B:504:THR:O	2:B:506:MET:SD	2.78	0.41
2:B:625:LEU:HD23	2:B:630:VAL:HG23	2.02	0.41
6:F:82:ALA:HA	6:F:94:LEU:HD22	2.02	0.41
7:G:83:ASP:OD1	7:G:83:ASP:N	2.53	0.41
11:K:228:VAL:HG11	11:K:231:ALA:HB2	2.02	0.41
21:U:53:MET:SD	21:U:54:PHE:N	2.93	0.41
1:A:219:ASN:OD1	1:A:221:LEU:N	2.53	0.41
1:A:276:GLU:HB2	1:A:281:MET:SD	2.59	0.41
2:B:743:VAL:HG22	2:B:1003:TYR:HB3	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1085:LEU:CD1	2:B:1086:LEU:HD23	2.49	0.41
7:G:70:ARG:H	7:G:71:MET:HE1	1.85	0.41
8:H:129:TRP:CZ2	8:H:131:TYR:CE1	3.07	0.41
22:W:145:PHE:CE1	22:W:149:TYR:CE2	3.08	0.41
1:A:207:VAL:HG22	3:C:421:PHE:CE1	2.56	0.41
1:A:331:ASN:ND2	1:A:332:MET:CE	2.83	0.41
1:A:369:ILE:HG21	1:A:505:MET:HG3	2.02	0.41
1:A:1148:THR:HG23	4:D:103:ILE:HG21	2.01	0.41
2:B:259:GLU:HA	2:B:262:MET:SD	2.61	0.41
2:B:355:ASP:N	2:B:355:ASP:OD2	2.54	0.41
6:F:84:LYS:HG2	6:F:116:SER:O	2.20	0.41
6:F:122:GLU:OE2	6:F:126:ILE:HG12	2.20	0.41
6:F:285:ALA:HB1	6:F:286:PRO:HD2	2.02	0.41
8:H:21:LYS:O	8:H:24:ASP:OD2	2.39	0.41
11:K:271:LYS:HE3	11:K:271:LYS:HA	2.02	0.41
18:R:172:VAL:HG22	18:R:253:PHE:HA	2.01	0.41
18:R:283:TYR:CD1	18:R:283:TYR:C	2.94	0.41
22:W:336:LYS:HG3	22:W:340:HIS:NE2	2.36	0.41
1:A:223:VAL:HG23	1:A:224:LEU:N	2.35	0.41
1:A:717:LEU:HD11	1:A:721:TYR:CE1	2.55	0.41
1:A:769:ARG:HD2	1:A:769:ARG:N	2.35	0.41
1:A:1124:ASP:OD1	1:A:1125:ASP:N	2.53	0.41
1:A:1136:ARG:HH22	1:A:1139:LEU:HD13	1.84	0.41
3:C:351:GLU:OE1	3:C:351:GLU:HA	2.19	0.41
6:F:123:ILE:O	6:F:127:LEU:HG	2.20	0.41
11:K:97:ASN:ND2	11:K:103:ASP:OD1	2.53	0.41
19:S:184:GLN:OE1	19:S:186:SER:N	2.53	0.41
19:S:198:GLU:OE2	19:S:198:GLU:HA	2.19	0.41
19:S:281:ALA:O	19:S:284:ARG:HG2	2.21	0.41
1:A:767:CYS:SG	1:A:768:LEU:HD12	2.60	0.41
2:B:613:GLU:OE1	2:B:619:ARG:NH2	2.54	0.41
2:B:832:MET:CE	2:B:833:PRO:O	2.68	0.41
3:C:364:ARG:HG3	6:F:244:TYR:O	2.21	0.41
4:D:138:ILE:HB	4:D:141:LYS:HB3	2.02	0.41
7:G:71:MET:HB3	7:G:71:MET:HE3	1.90	0.41
7:G:92:MET:SD	7:G:92:MET:N	2.76	0.41
8:H:29:GLU:O	8:H:29:GLU:OE2	2.38	0.41
13:M:197:SER:HB3	13:M:201:GLY:O	2.20	0.41
25:Z:309:TYR:N	25:Z:321:ILE:O	2.46	0.41
25:Z:388:HIS:HB3	25:Z:399:PHE:CZ	2.56	0.41
1:A:66:ASP:CG	1:A:67:ARG:HD2	2.40	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:877:LYS:NZ	1:A:1317:MET:SD	2.87	0.41
1:A:912:MET:HE2	1:A:1285:ARG:NH1	2.36	0.41
2:B:454:ARG:HG3	2:B:454:ARG:HH11	1.85	0.41
3:C:267:VAL:HA	3:C:270:MET:SD	2.61	0.41
8:H:23:ASN:O	8:H:26:ILE:HG22	2.20	0.41
13:M:173:ILE:HG23	13:M:209:VAL:HG12	2.02	0.41
17:Q:25:LEU:HD23	17:Q:25:LEU:HA	1.92	0.41
18:R:172:VAL:HG21	18:R:250:PHE:CE2	2.56	0.41
22:W:185:LYS:HE2	22:W:187:TRP:HE1	1.86	0.41
23:X:-12:DC:H2"	23:X:-11:DC:C6	2.55	0.41
23:X:21:DC:H1'	23:X:22:DA:C8	2.55	0.41
1:A:221:LEU:HD11	1:A:310:TRP:HH2	1.86	0.41
1:A:241:ASN:C	1:A:241:ASN:OD1	2.59	0.41
1:A:876:VAL:HG11	2:B:1053:ASP:OD1	2.21	0.41
1:A:1199:VAL:CG1	1:A:1200:VAL:H	2.34	0.41
2:B:514:LEU:HD11	2:B:562:MET:HG3	2.03	0.41
2:B:790:VAL:O	2:B:790:VAL:HG23	2.20	0.41
3:C:385:MET:HE3	6:F:241:THR:HG21	1.99	0.41
8:H:1:MET:SD	8:H:1:MET:C	2.99	0.41
19:S:85:LEU:HB3	19:S:89:PHE:CD2	2.56	0.41
19:S:172:LEU:O	19:S:175:THR:HG22	2.21	0.41
19:S:176:TYR:CE2	19:S:180:PHE:HZ	2.39	0.41
1:A:803:ALA:C	1:A:804:ILE:HD12	2.40	0.41
6:F:247:LYS:HA	6:F:273:VAL:HG23	2.02	0.41
8:H:190:ILE:HD11	8:H:196:GLY:HA2	2.03	0.41
11:K:156:SER:HA	11:K:162:LEU:HD21	2.03	0.41
19:S:202:SER:O	19:S:205:MET:HE3	2.20	0.41
19:S:295:LYS:HG2	19:S:296:HIS:CE1	2.56	0.41
23:X:36:DC:C6	23:X:37:DT:H72	2.55	0.41
1:A:237:LEU:HD23	1:A:237:LEU:O	2.20	0.41
1:A:1092:ASP:OD1	1:A:1093:ASP:N	2.53	0.41
1:A:1232:LEU:HD12	1:A:1248:SER:HB2	2.03	0.41
2:B:171:VAL:O	2:B:174:VAL:HG22	2.21	0.41
2:B:1031:LEU:HG	2:B:1032:THR:HG23	2.03	0.41
3:C:508:LYS:HG3	7:G:48:LEU:HD22	2.03	0.41
5:E:148:LYS:O	5:E:151:GLU:HG2	2.21	0.41
5:E:276:LEU:HG	5:E:281:GLN:CG	2.49	0.41
5:E:348:VAL:HG13	5:E:348:VAL:O	2.21	0.41
6:F:302:ILE:H	6:F:302:ILE:HG12	1.72	0.41
6:F:313:TRP:CZ2	7:G:48:LEU:HD11	2.54	0.41
11:K:116:HIS:CG	11:K:116:HIS:O	2.74	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:R:168:ILE:HD13	18:R:258:MET:HB3	2.03	0.41
18:R:202:MET:HB3	18:R:237:TYR:CE1	2.56	0.41
23:X:13:DT:H2"	24:Y:-12:DA:N1	2.35	0.41
24:Y:-56:DC:H2"	24:Y:-55:DC:C6	2.56	0.41
1:A:63:SER:HB3	1:A:260:LEU:HD11	2.03	0.41
1:A:115:ILE:HD12	1:A:237:LEU:HD13	2.03	0.41
1:A:1090:ASP:OD2	10:J:76:ARG:NE	2.47	0.41
3:C:384:ALA:HB3	3:C:386:ILE:HG12	2.03	0.41
6:F:42:MET:SD	6:F:45:ILE:CD1	3.05	0.41
8:H:111:PRO:HA	8:H:114:LEU:HD12	2.01	0.41
15:O:111:ARG:HA	15:O:127:GLY:O	2.21	0.41
19:S:180:PHE:HB2	19:S:182:LEU:HG	2.03	0.41
19:S:294:VAL:HA	19:S:297:ILE:HD11	2.03	0.41
22:W:264:GLU:CD	22:W:265:LYS:H	2.24	0.41
24:Y:-27:DA:H2'	24:Y:-26:DA:H8	1.86	0.41
1:A:1092:ASP:OD2	1:A:1223:TYR:CE1	2.74	0.40
1:A:1289:LEU:HD23	1:A:1289:LEU:C	2.41	0.40
3:C:409:ILE:HG13	3:C:421:PHE:CD1	2.57	0.40
6:F:296:CYS:SG	6:F:304:PRO:HD3	2.62	0.40
8:H:130:GLU:O	8:H:131:TYR:HD1	2.04	0.40
14:N:55:PRO:O	14:N:124:ILE:HD12	2.20	0.40
19:S:151:SER:O	19:S:154:MET:HG2	2.20	0.40
25:Z:204:MET:SD	25:Z:204:MET:N	2.94	0.40
1:A:29:ARG:HB2	1:A:254:ARG:HH11	1.86	0.40
1:A:542:ILE:HG13	1:A:543:GLN:H	1.86	0.40
1:A:590:LYS:HB3	1:A:591:PRO:HD3	2.03	0.40
2:B:227:HIS:NE2	2:B:229:THR:OG1	2.13	0.40
3:C:66:GLN:OE1	3:C:74:GLU:HB2	2.21	0.40
5:E:397:GLY:N	17:Q:28:GLU:OE1	2.54	0.40
6:F:231:SER:O	6:F:233:GLU:N	2.54	0.40
13:M:94:MET:SD	13:M:99:ILE:O	2.78	0.40
13:M:130:PHE:N	13:M:130:PHE:CD2	2.89	0.40
16:P:13:GLN:HB3	16:P:14:PRO:HD3	2.03	0.40
20:T:306:LYS:NZ	20:T:375:LEU:HD13	2.35	0.40
21:U:50:GLU:O	21:U:53:MET:SD	2.79	0.40
23:X:53:DT:OP2	23:X:53:DT:O4'	2.39	0.40
23:X:57:DG:C8	23:X:58:DT:H72	2.57	0.40
1:A:223:VAL:CB	1:A:227:PHE:HE1	2.30	0.40
1:A:279:LEU:O	1:A:283:LEU:HD23	2.21	0.40
1:A:379:GLU:OE2	1:A:479:ARG:NH1	2.54	0.40
1:A:1090:ASP:OD2	10:J:76:ARG:NH2	2.52	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:139:MET:SD	3:C:140:ASP:N	2.95	0.40
6:F:83:GLY:O	6:F:86:LYS:HA	2.22	0.40
6:F:239:LEU:HD22	6:F:266:HIS:ND1	2.36	0.40
1:A:105:LEU:CD1	1:A:166:VAL:HG11	2.48	0.40
1:A:177:GLU:HG3	1:A:180:LYS:HB3	2.04	0.40
1:A:307:MET:N	1:A:307:MET:SD	2.95	0.40
1:A:725:ASP:O	1:A:728:ILE:HG22	2.21	0.40
1:A:1067:VAL:N	1:A:1068:PRO:CD	2.84	0.40
1:A:1100:LEU:HA	10:J:80:MET:SD	2.61	0.40
1:A:1123:PRO:HB3	10:J:20:CYS:SG	2.62	0.40
1:A:1356:GLY:HA3	2:B:1059:GLY:O	2.21	0.40
2:B:597:ILE:HA	2:B:630:VAL:HG12	2.03	0.40
2:B:946:LEU:HD22	2:B:1003:TYR:CE2	2.55	0.40
6:F:235:ILE:HA	6:F:238:ILE:HG22	2.03	0.40
19:S:76:VAL:HG22	19:S:118:VAL:HG13	2.02	0.40
20:T:311:PHE:CE2	20:T:340:LYS:HE2	2.57	0.40
21:U:104:TRP:CH2	21:U:135:PHE:HB2	2.55	0.40
1:A:1308:LEU:HD23	1:A:1312:LYS:HG2	2.04	0.40
2:B:269:LEU:O	2:B:273:GLN:OE1	2.39	0.40
3:C:509:LEU:HD23	6:F:313:TRP:HZ3	1.87	0.40
5:E:65:LEU:H	5:E:65:LEU:HD22	1.85	0.40
5:E:194:GLU:OE1	5:E:194:GLU:N	2.53	0.40
6:F:220:ILE:HG22	6:F:226:SER:HB2	2.04	0.40
9:I:18:GLN:NE2	9:I:22:ASP:OD2	2.55	0.40
21:U:101:LEU:HA	25:Z:51:TRP:CZ2	2.56	0.40
25:Z:382:VAL:O	25:Z:386:MET:HG2	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	A	1377/1390 (99%)	1274 (92%)	101 (7%)	2 (0%)	48 79
2	B	1091/1133 (96%)	1031 (94%)	59 (5%)	1 (0%)	48 79
3	C	508/534 (95%)	489 (96%)	19 (4%)	0	100 100
4	D	180/398 (45%)	170 (94%)	10 (6%)	0	100 100
5	E	396/708 (56%)	378 (96%)	18 (4%)	0	100 100
6	F	300/316 (95%)	241 (80%)	46 (15%)	13 (4%)	2 18
7	G	80/223 (36%)	70 (88%)	10 (12%)	0	100 100
8	H	185/204 (91%)	178 (96%)	7 (4%)	0	100 100
9	I	122/148 (82%)	120 (98%)	2 (2%)	0	100 100
10	J	105/108 (97%)	87 (83%)	18 (17%)	0	100 100
11	K	341/346 (99%)	327 (96%)	14 (4%)	0	100 100
12	L	105/133 (79%)	99 (94%)	6 (6%)	0	100 100
13	M	207/210 (99%)	201 (97%)	6 (3%)	0	100 100
14	N	76/127 (60%)	72 (95%)	4 (5%)	0	100 100
15	O	146/150 (97%)	141 (97%)	5 (3%)	0	100 100
16	P	44/58 (76%)	38 (86%)	6 (14%)	0	100 100
17	Q	64/67 (96%)	64 (100%)	0	0	100 100
18	R	176/200 (88%)	170 (97%)	6 (3%)	0	100 100
19	S	357/419 (85%)	347 (97%)	10 (3%)	0	100 100
20	T	76/484 (16%)	72 (95%)	4 (5%)	0	100 100
21	U	139/368 (38%)	137 (99%)	2 (1%)	0	100 100
22	W	240/1519 (16%)	235 (98%)	5 (2%)	0	100 100
25	Z	383/411 (93%)	370 (97%)	13 (3%)	0	100 100
All	All	6698/9654 (69%)	6311 (94%)	371 (6%)	16 (0%)	45 75

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	40	VAL
6	F	86	LYS
6	F	160	SER
6	F	232	MET
6	F	245	ASP
6	F	268	LYS
6	F	297	HIS

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Mol	Chain	Res	Type
1	A	1097	TYR
6	F	82	ALA
6	F	263	VAL
6	F	301	GLU
6	F	292	VAL
6	F	307	CYS
1	A	1197	PRO
6	F	79	SER
6	F	286	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1204/1212 (99%)	1167 (97%)	37 (3%)	35	62
2	B	959/988 (97%)	935 (98%)	24 (2%)	42	67
3	C	458/476 (96%)	448 (98%)	10 (2%)	47	69
4	D	167/347 (48%)	164 (98%)	3 (2%)	54	74
5	E	358/622 (58%)	346 (97%)	12 (3%)	32	60
6	F	268/280 (96%)	250 (93%)	18 (7%)	13	40
7	G	79/195 (40%)	73 (92%)	6 (8%)	11	35
8	H	168/181 (93%)	165 (98%)	3 (2%)	54	74
9	I	116/136 (85%)	115 (99%)	1 (1%)	75	86
10	J	93/94 (99%)	90 (97%)	3 (3%)	34	61
11	K	299/302 (99%)	298 (100%)	1 (0%)	91	96
12	L	96/119 (81%)	96 (100%)	0	100	100
13	M	191/192 (100%)	183 (96%)	8 (4%)	25	54
14	N	68/111 (61%)	68 (100%)	0	100	100
15	O	129/131 (98%)	128 (99%)	1 (1%)	79	87
16	P	43/55 (78%)	42 (98%)	1 (2%)	45	69
17	Q	55/56 (98%)	54 (98%)	1 (2%)	54	74

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
18	R	152/172 (88%)	147 (97%)	5 (3%)	33 60
19	S	324/365 (89%)	317 (98%)	7 (2%)	47 69
20	T	70/440 (16%)	67 (96%)	3 (4%)	25 53
21	U	124/334 (37%)	118 (95%)	6 (5%)	21 50
22	W	215/1250 (17%)	211 (98%)	4 (2%)	52 73
25	Z	340/356 (96%)	337 (99%)	3 (1%)	75 86
All	All	5976/8414 (71%)	5819 (97%)	157 (3%)	42 65

All (157) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	6	PHE
1	A	22	MET
1	A	23	LYS
1	A	58	HIS
1	A	67	ARG
1	A	74	LYS
1	A	105	LEU
1	A	116	MET
1	A	125	PHE
1	A	158	HIS
1	A	187	ASP
1	A	198	GLU
1	A	225	ASN
1	A	261	CYS
1	A	288	PHE
1	A	295	LYS
1	A	296	HIS
1	A	305	MET
1	A	360	ARG
1	A	428	MET
1	A	436	ASN
1	A	464	ARG
1	A	627	LYS
1	A	652	LYS
1	A	767	CYS
1	A	769	ARG
1	A	905	ASP
1	A	1004	ASP
1	A	1099	ARG

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Mol	Chain	Res	Type
1	A	1185	MET
1	A	1191	PHE
1	A	1239	HIS
1	A	1275	MET
1	A	1329	PHE
1	A	1333	TYR
1	A	1334	PHE
1	A	1368	ARG
2	B	91	PHE
2	B	226	ARG
2	B	246	GLU
2	B	262	MET
2	B	354	ARG
2	B	357	TYR
2	B	385	LYS
2	B	400	PHE
2	B	404	LYS
2	B	405	HIS
2	B	463	ARG
2	B	478	MET
2	B	527	CYS
2	B	553	LYS
2	B	709	MET
2	B	753	ASP
2	B	794	MET
2	B	832	MET
2	B	859	LYS
2	B	970	LYS
2	B	1009	TYR
2	B	1020	MET
2	B	1053	ASP
2	B	1076	GLU
3	C	66	GLN
3	C	270	MET
3	C	273	MET
3	C	339	HIS
3	C	385	MET
3	C	398	MET
3	C	434	MET
3	C	455	LYS
3	C	474	MET
3	C	524	GLU

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Mol	Chain	Res	Type
4	D	146	GLU
4	D	156	ARG
4	D	369	ARG
5	E	23	GLU
5	E	97	MET
5	E	99	LYS
5	E	106	GLN
5	E	114	TYR
5	E	195	PHE
5	E	198	LYS
5	E	245	TYR
5	E	247	MET
5	E	249	LEU
5	E	292	MET
5	E	365	TRP
6	F	42	MET
6	F	86	LYS
6	F	185	PHE
6	F	247	LYS
6	F	267	MET
6	F	271	ARG
6	F	277	ILE
6	F	282	LEU
6	F	284	ARG
6	F	289	LEU
6	F	294	ASP
6	F	295	ASP
6	F	297	HIS
6	F	301	GLU
6	F	303	SER
6	F	308	ILE
6	F	314	LEU
6	F	315	GLU
7	G	43	TYR
7	G	52	GLU
7	G	68	MET
7	G	96	LYS
7	G	106	LEU
7	G	110	MET
8	H	45	CYS
8	H	135	GLU
8	H	186	LEU

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Mol	Chain	Res	Type
9	I	69	PHE
10	J	4	PHE
10	J	95	TYR
10	J	106	TRP
11	K	246	GLU
13	M	61	LEU
13	M	73	PHE
13	M	91	CYS
13	M	94	MET
13	M	103	LEU
13	M	121	MET
13	M	172	ARG
13	M	181	ARG
15	O	54	ASP
16	P	41	TYR
17	Q	44	CYS
18	R	250	PHE
18	R	254	LYS
18	R	258	MET
18	R	283	TYR
18	R	295	MET
19	S	135	MET
19	S	149	PHE
19	S	184	GLN
19	S	186	SER
19	S	188	SER
19	S	276	MET
19	S	406	GLN
20	T	334	ARG
20	T	354	LYS
20	T	367	PHE
21	U	36	MET
21	U	47	ARG
21	U	51	LYS
21	U	53	MET
21	U	65	TYR
21	U	111	GLN
22	W	186	ASN
22	W	214	TYR
22	W	276	SER
22	W	364	MET
25	Z	151	ARG

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Mol	Chain	Res	Type
25	Z	252	PHE
25	Z	289	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	316	GLN
1	A	436	ASN
3	C	457	ASN
6	F	214	HIS
6	F	297	HIS
22	W	306	GLN
25	Z	289	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 11 ligands modelled in this entry, 10 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
28	SF4	F	401	6	0,12,12	-	-	-		

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	SF4	F	401	6	-	-	0/6/5/5

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
28	F	401	SF4	6	0

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.

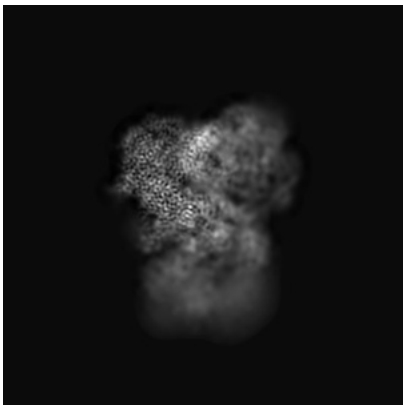
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-50732. These allow visual inspection of the internal detail of the map and identification of artifacts.

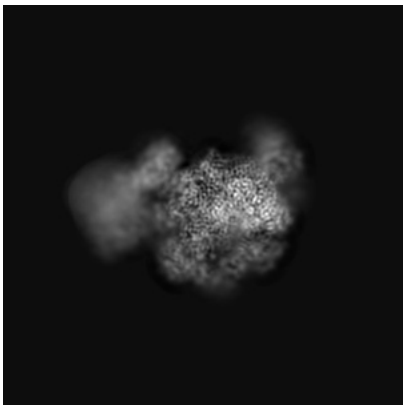
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

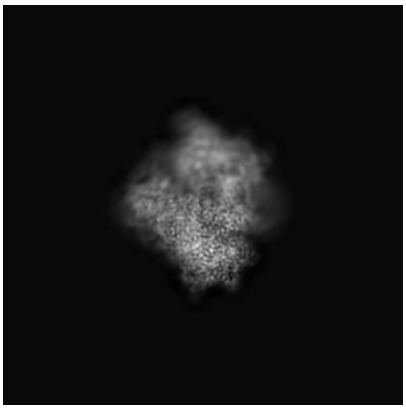
6.1.1 Primary map



X

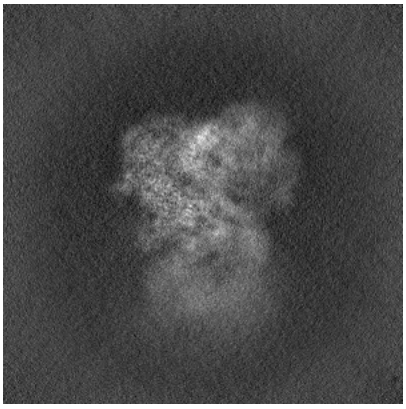


Y

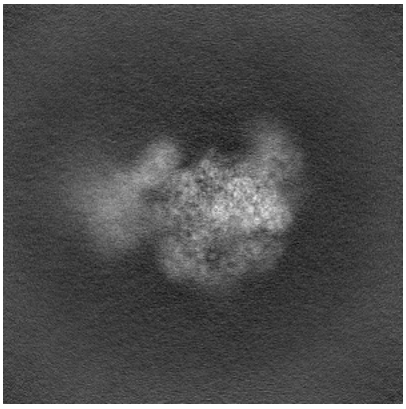


Z

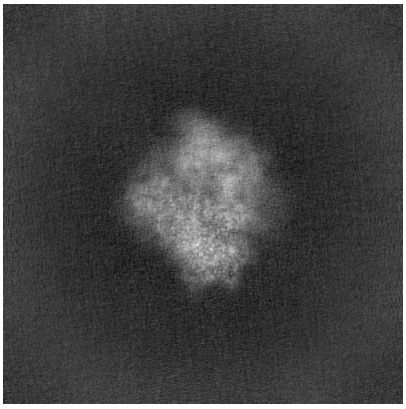
6.1.2 Raw map



X



Y

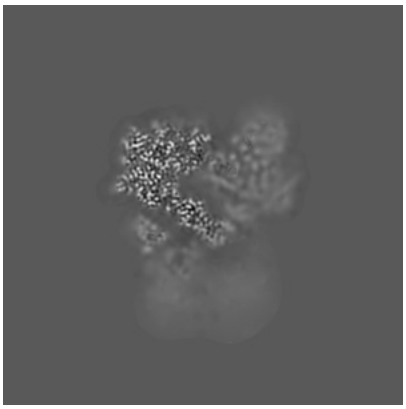


Z

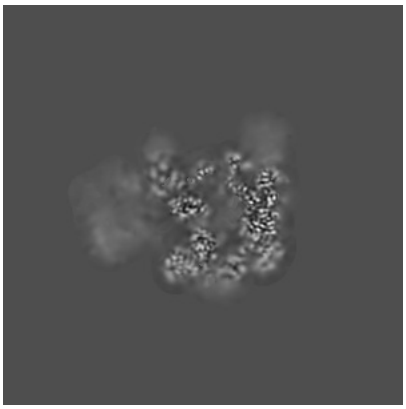
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

6.2.1 Primary map



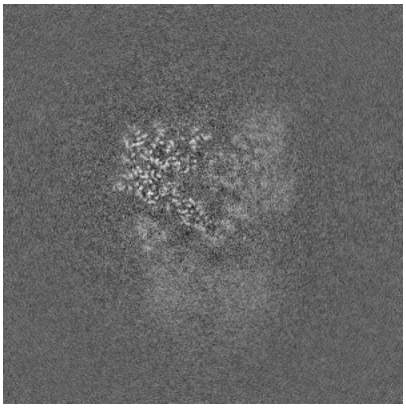
X Index: 210



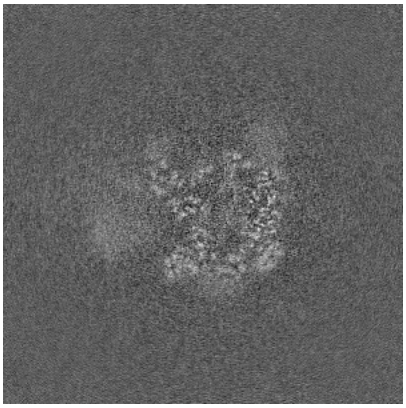
Y Index: 210

Z Index: 210

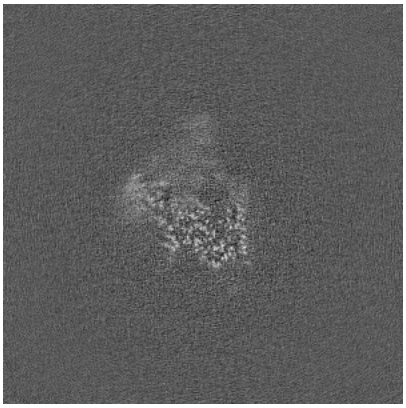
6.2.2 Raw map



X Index: 210



Y Index: 210

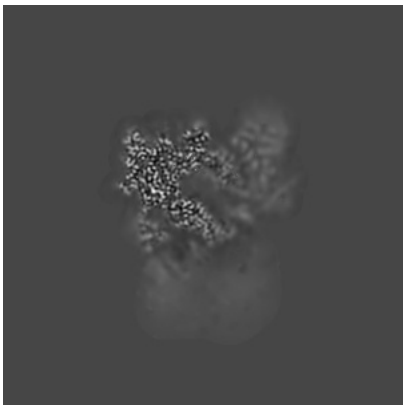


Z Index: 210

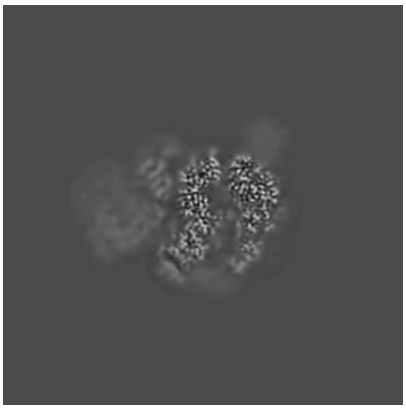
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

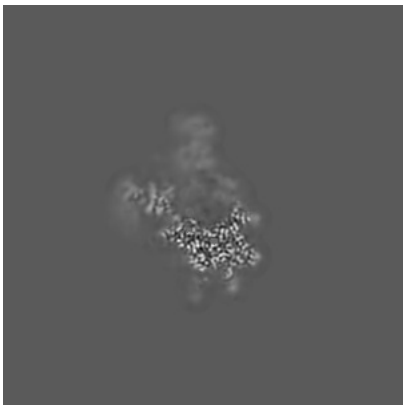
6.3.1 Primary map



X Index: 214

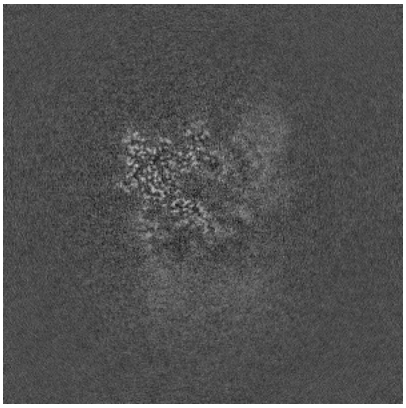


Y Index: 195

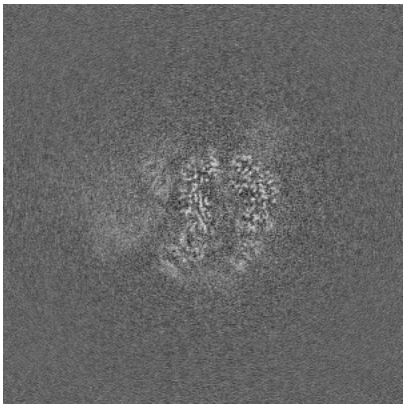


Z Index: 220

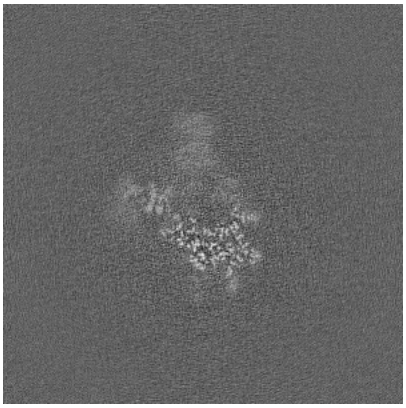
6.3.2 Raw map



X Index: 214



Y Index: 196

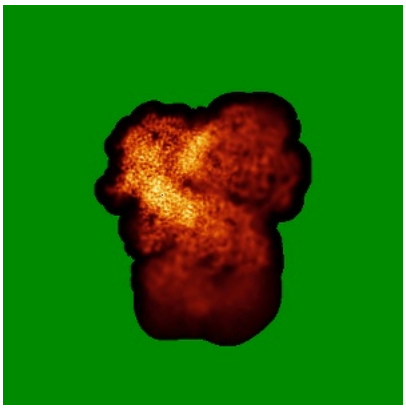


Z Index: 220

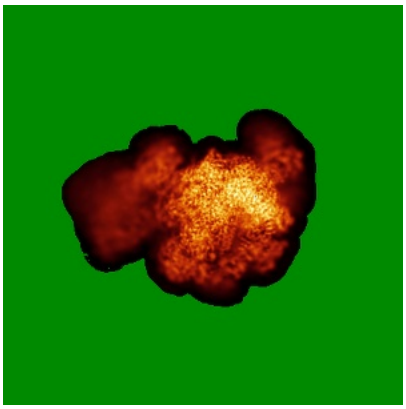
The images above show the largest variance slices of the map in three orthogonal directions.

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

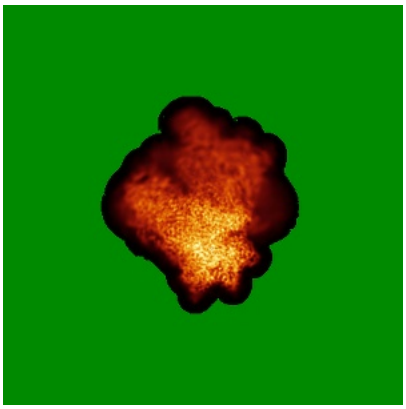
6.4.1 Primary map



X

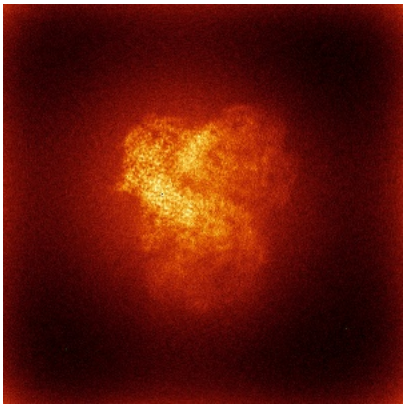


Y

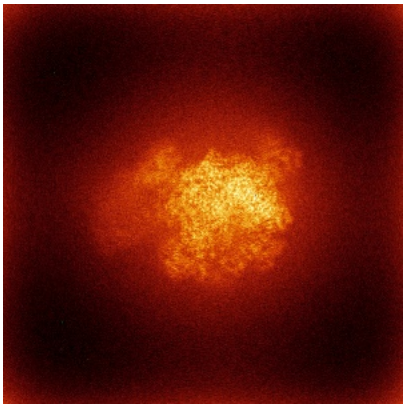


Z

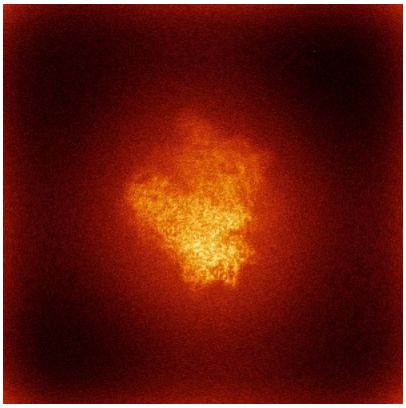
6.4.2 Raw map



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.

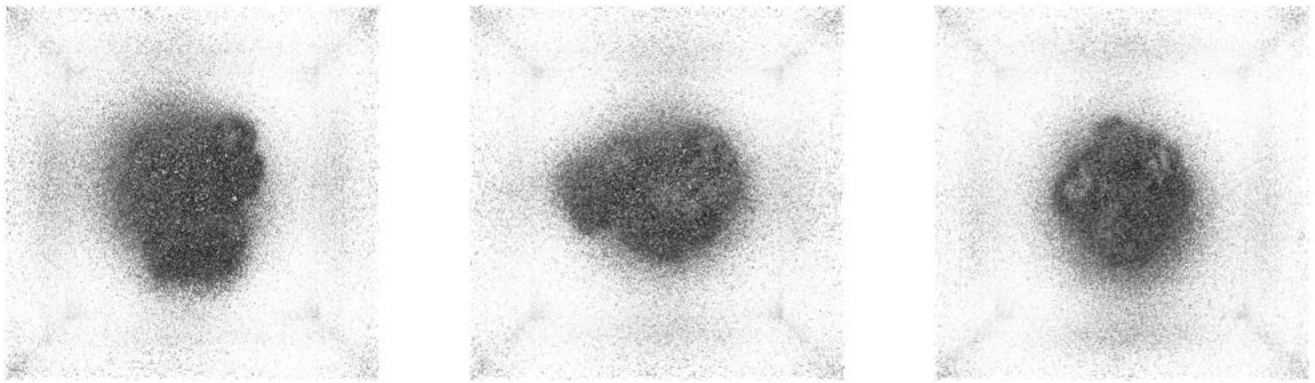
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

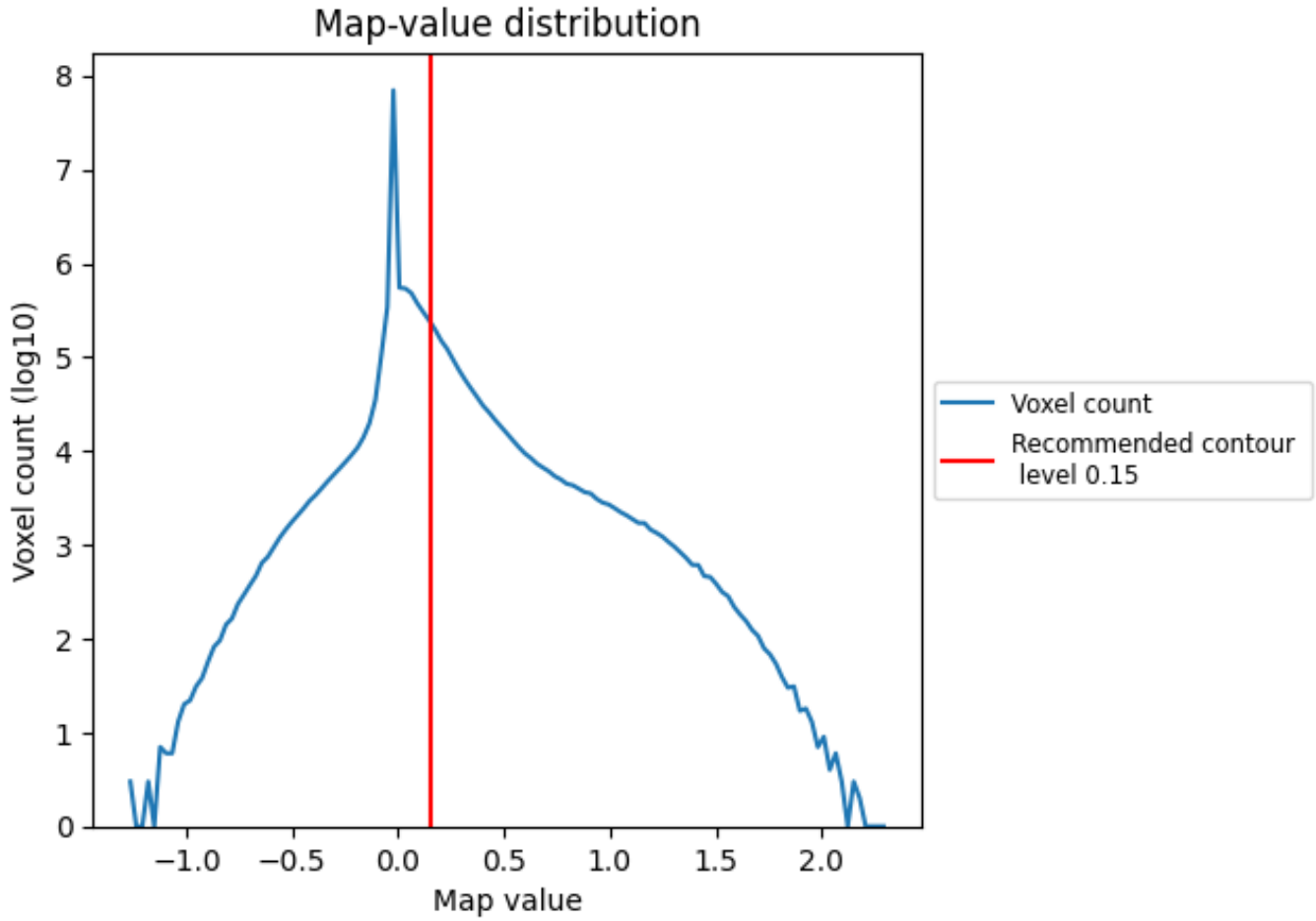
6.6 Mask visualisation (i)

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

7 Map analysis

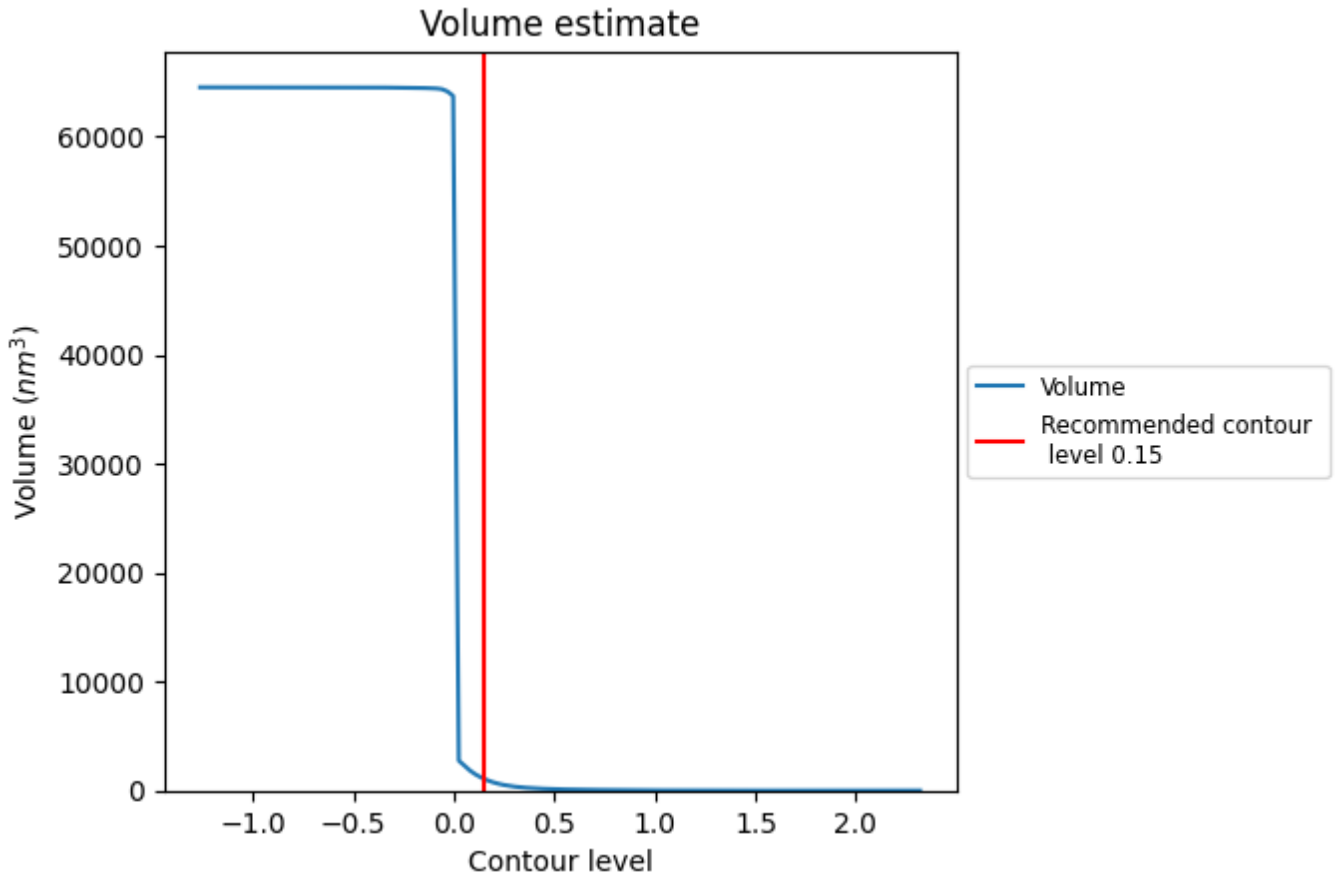
This section contains the results of statistical analysis of the map.

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.

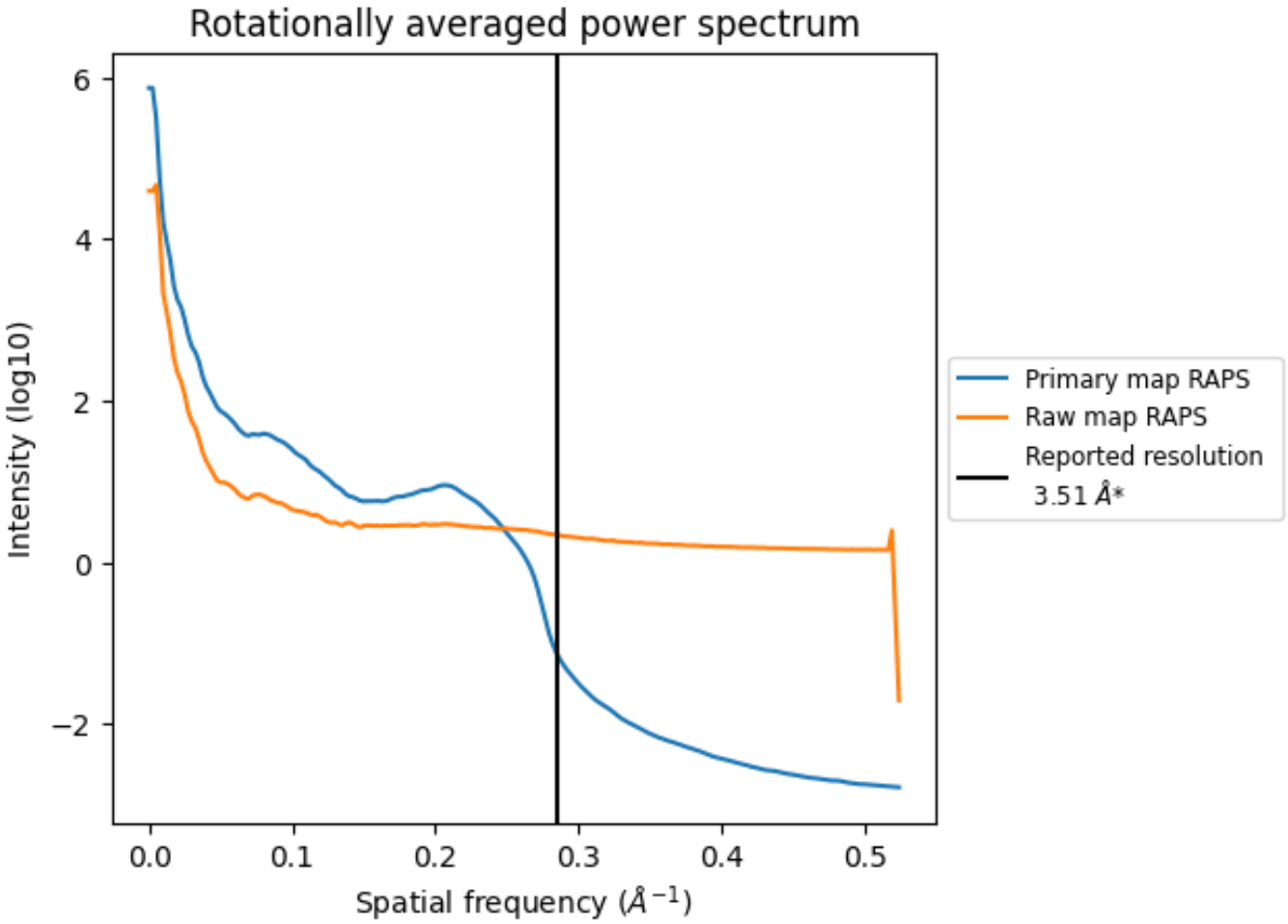
7.2 Volume estimate



The volume at the recommended contour level is 1080 nm^3; this corresponds to an approximate mass of 976 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)

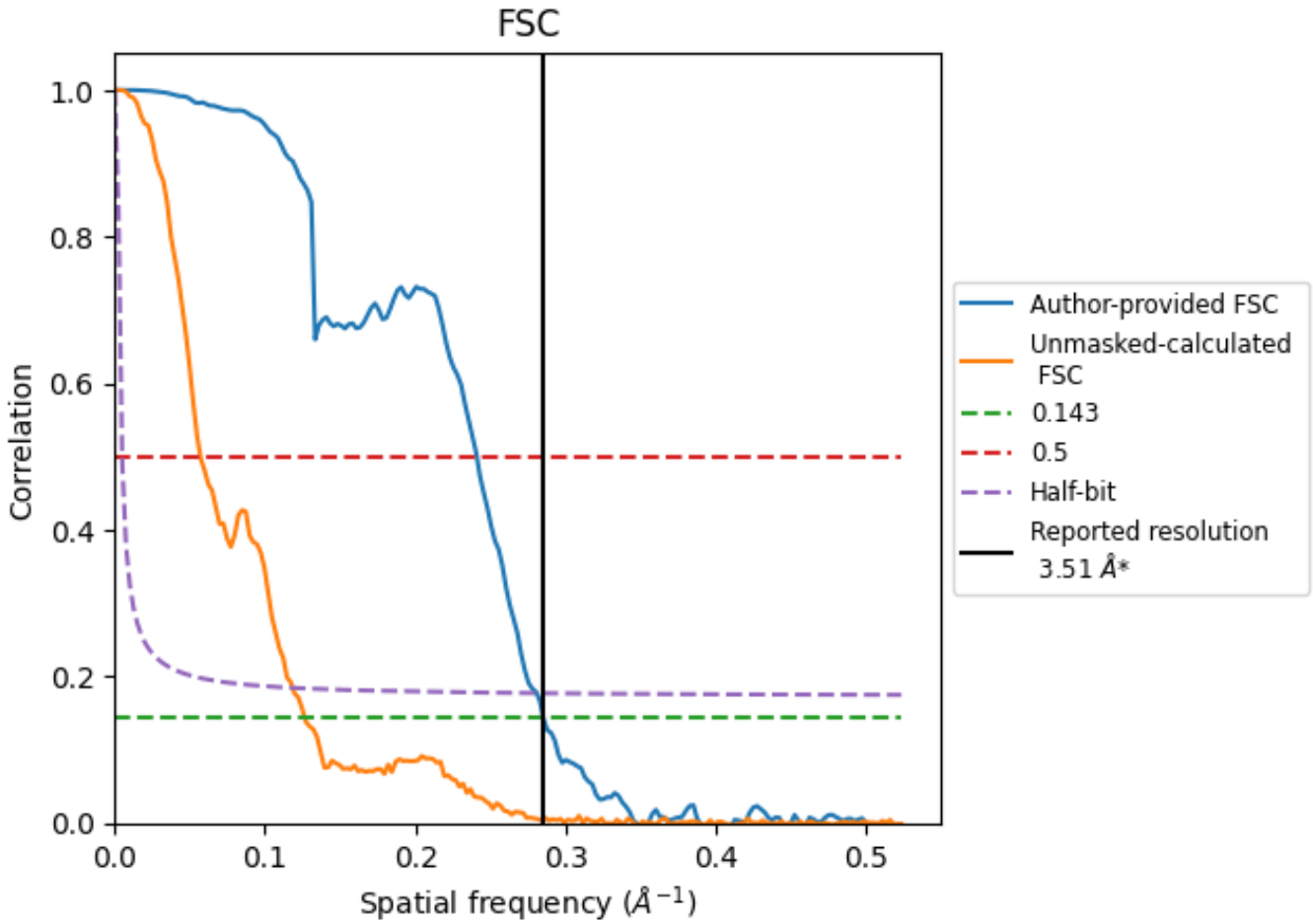


*Reported resolution corresponds to spatial frequency of 0.285 $Å^{-1}$

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 0.285 $Å^{-1}$

8.2 Resolution estimates (i)

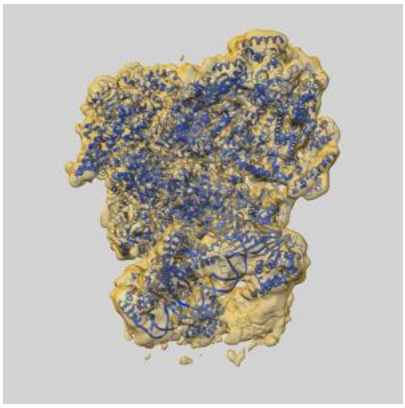
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.51	-	-
Author-provided FSC curve	3.51	4.15	3.56
Unmasked-calculated*	7.91	17.51	8.45

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.91 differs from the reported value 3.51 by more than 10 %

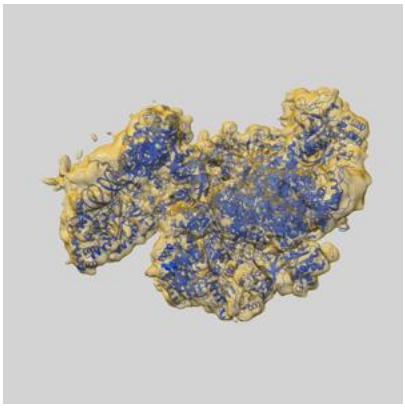
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-50732 and PDB model 9FSQ. Per-residue inclusion information can be found in section 3 on page 11.

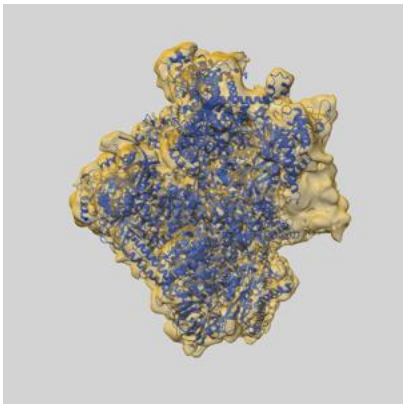
9.1 Map-model overlay



X



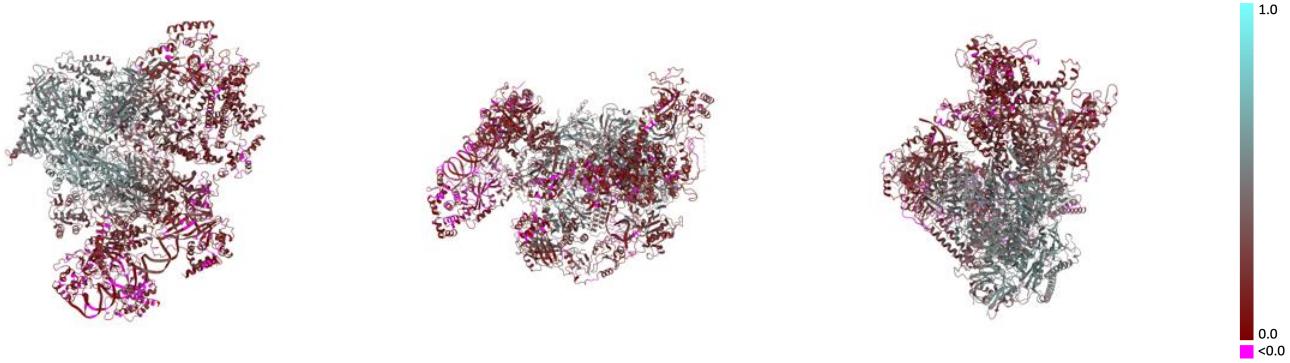
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.15 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.

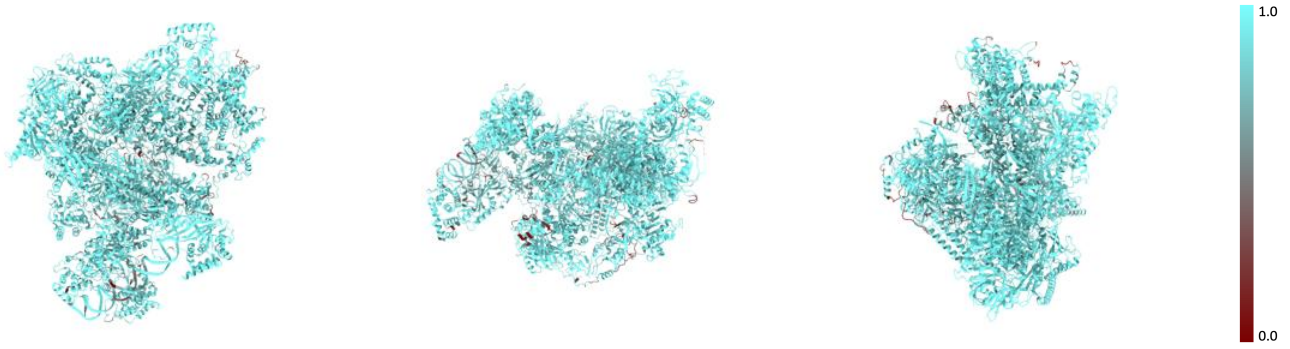
9.2 Q-score mapped to coordinate model



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.

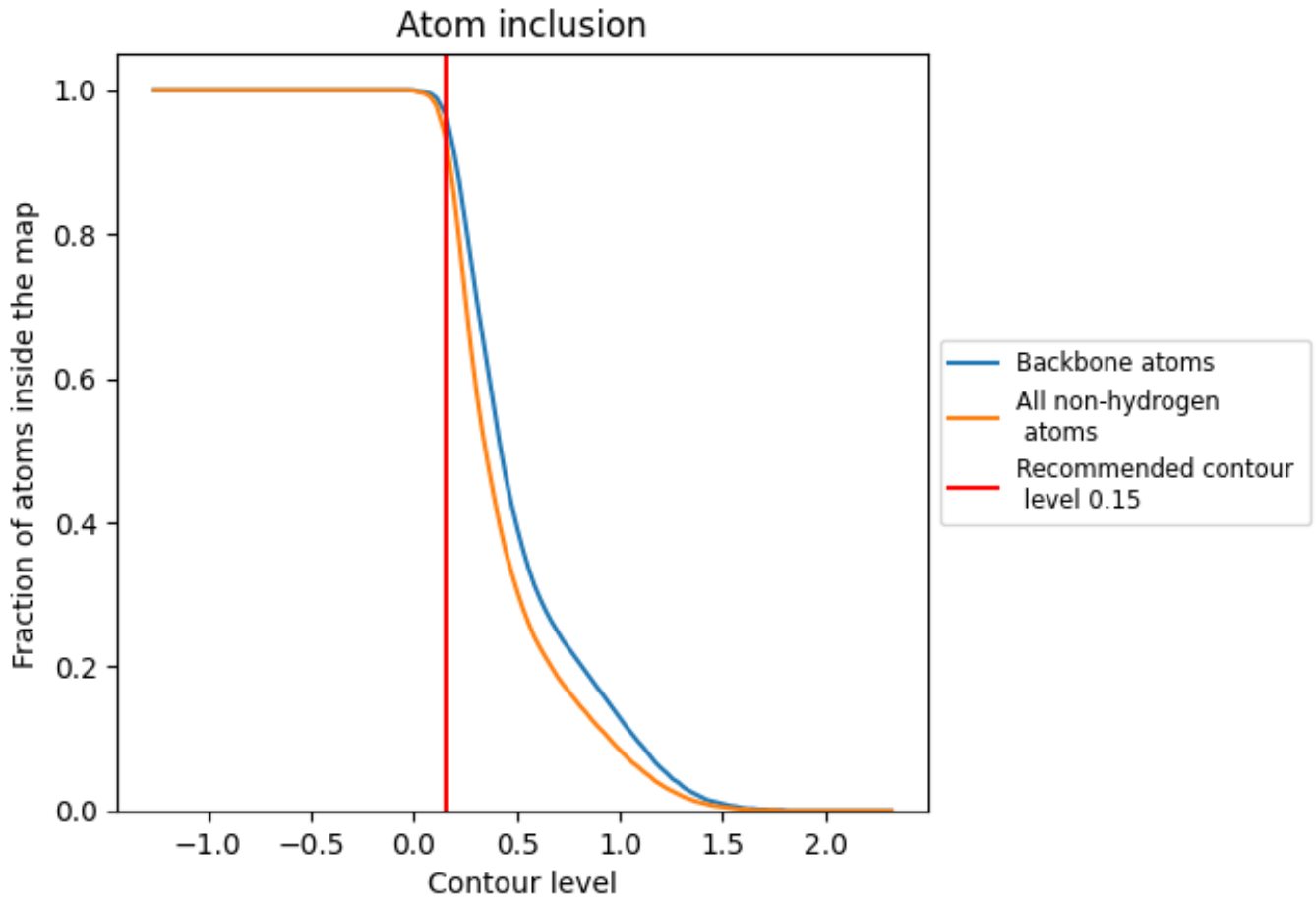
9.3 Atom inclusion mapped to coordinate model



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 (0.15).

9.4 Atom inclusion (i)



At the recommended contour level, 97% of all backbone atoms, 94% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9380	0.2940
A	0.9390	0.3690
B	0.9690	0.4640
C	0.9190	0.1590
D	0.8690	0.2560
E	0.9290	0.2740
F	0.8680	0.1080
G	0.9510	0.1950
H	0.9810	0.2610
I	0.9820	0.1970
J	0.7550	0.1290
K	0.9880	0.4980
L	0.9960	0.4860
M	0.9800	0.3040
N	0.9920	0.5030
O	0.9890	0.4650
P	0.9920	0.4540
Q	0.9940	0.5310
R	0.9850	0.1650
S	0.9080	0.2430
T	0.9970	0.1370
U	0.9440	0.0550
W	0.8880	0.1200
X	0.9160	0.1710
Y	0.8900	0.1520
Z	0.9030	0.0800