Full wwPDB EM Validation Report ⓘ

Mar 20, 2024 – 02:47 AM JST

PDB ID	:	6KW5
EMDB ID	:	EMD-0779
Title	:	The ClassC RSC-Nucleosome Complex
Authors	:	Ye, Y.P.; Wu, H.; Chen, K.J.; Verma, N.; Cairns, B.; Gao, N.; Chen, Z.C.
Deposited on	:	2019-09-06
Resolution	:	10.13 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:

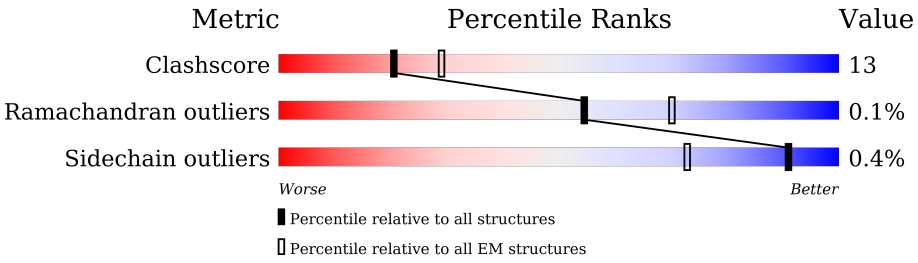
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance

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

The reported resolution of this entry is 10.13 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	F	435	25% 73%
2	D	557	10% 48% 7% 45%
2	H	557	9% 62% 8% 29%
3	M	581	10% 61% 5% 34%
4	I	483	8% 45% 5% 49%
5	G	426	6% 46% 11% 42%
6	A	502	15% 62% 11% 27%
7	J	1359	6% 15% 83%

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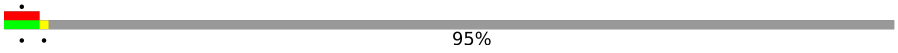
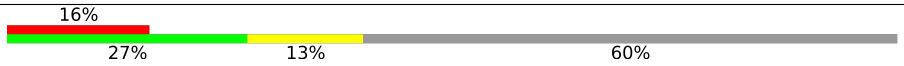
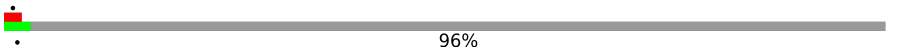
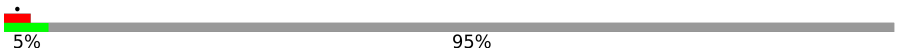
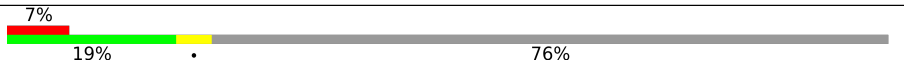
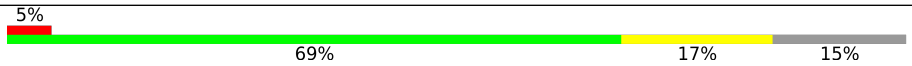
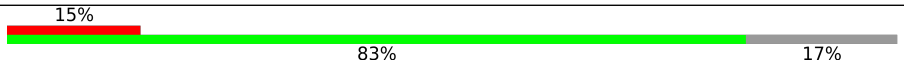
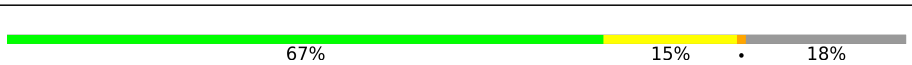
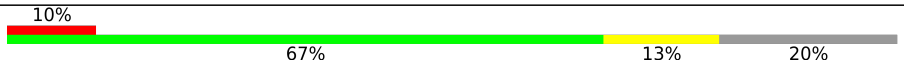
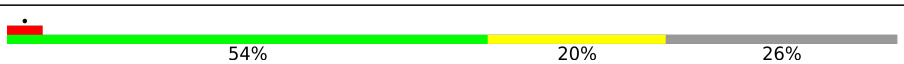
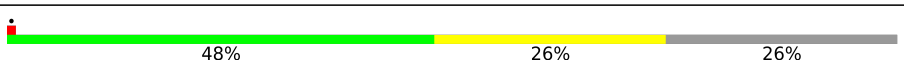
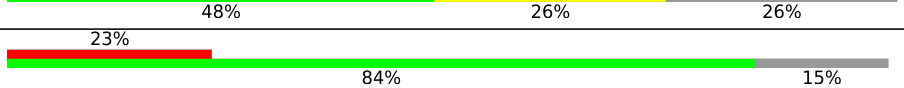
Mol	Chain	Length	Quality of chain
7	P	1359	
7	Q	1359	
8	E	78	
9	C	883	
10	K	885	
11	X	625	
12	L	889	
13	S	103	
13	W	103	
14	f	477	
15	h	157	
16	R	136	
16	V	136	
17	O	130	
17	T	130	
18	U	126	
18	Y	126	
19	g	467	
20	B	167	
21	N	167	

2 Entry composition

There are 22 unique types of molecules in this entry. The entry contains 45484 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 Chromatin structure-remodeling complex subunit RSC7.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	F	118	Total	C	N	O	S	0	0
			964	601	164	197	2		

- Molecule 2 is a protein called Chromatin structure-remodeling complex protein RSC8.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	393	Total	C	N	O	S	0	0
			3215	2036	552	613	14		
2	D	305	Total	C	N	O	S	0	0
			2510	1613	416	471	10		

- Molecule 3 is a protein called Chromatin structure-remodeling complex subunit RSC9.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	M	384	Total	C	N	O	S	0	0
			3058	1970	497	574	17		

- Molecule 4 is a protein called Chromatin structure-remodeling complex protein RSC6.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	I	244	Total	C	N	O	S	0	0
			1944	1234	328	377	5		

- Molecule 5 is a protein called Chromatin structure-remodeling complex subunit SFH1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	G	246	Total	C	N	O	S	0	0
			1996	1271	337	380	8		

- Molecule 6 is a protein called Chromatin structure-remodeling complex protein RSC58.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	A	365	Total	C	N	O	S	0	0
			3007	1942	509	547	9		

- Molecule 7 is a protein called Nuclear protein STH1/NPS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	J	235	Total	C	N	O	S	0	0
			1814	1136	327	349	2		
7	P	69	Total	C	N	O	S	0	0
			592	364	121	105	2		
7	Q	548	Total	C	N	O	S	0	0
			4503	2873	780	832	18		

- Molecule 8 is a protein called High temperature lethal protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	E	58	Total	C	N	O	S	0	0
			477	295	86	92	4		

- Molecule 9 is a protein called Chromatin structure-remodeling complex protein RSC30.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	C	33	Total	C	N	O	S	0	0
			269	177	39	52	1		

- Molecule 10 is a protein called Chromatin structure-remodeling complex protein RSC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	42	Total	C	N	O	S	0	0
			347	225	57	63	2		

- Molecule 11 is a protein called Chromatin structure-remodeling complex subunit RSC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	X	147	Total	C	N	O	S	0	0
			1220	776	202	234	8		

- Molecule 12 is a protein called Chromatin structure-remodeling complex subunit RSC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	L	85	Total	C	N	O	S	0	0
			669	428	120	119	2		

- Molecule 13 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	W	88	Total	C	N	O	S	0	0
			708	445	143	119	1		
13	S	82	Total	C	N	O	S	0	0
			657	416	128	112	1		

- Molecule 14 is a protein called Actin-related protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	f	398	Total	C	N	O	S	3	0
			3219	2075	527	602	15		

- Molecule 15 is a protein called Regulator of Ty1 transposition protein 102.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	h	54	Total	C	N	O	S	0	0
			490	313	84	92	1		

- Molecule 16 is a protein called Histone H3.2.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	R	96	Total	C	N	O	S	0	0
			794	500	154	137	3		
16	V	95	Total	C	N	O	S	0	0
			784	494	151	136	3		

- Molecule 17 is a protein called Histone H2A.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	T	104	Total	C	N	O	0	0
			804	507	157	140		
17	O	107	Total	C	N	O	0	0
			823	519	161	143		

- Molecule 18 is a protein called Histone H4.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	U	93	Total	C	N	O	S	0	0
			725	456	130	137	2		
18	Y	93	Total	C	N	O	S	0	0
			717	450	128	137	2		

- Molecule 19 is a protein called Actin-like protein ARP9.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	g	395	Total	C	N	O	S	1	0
			3191	2048	522	614	7		

- Molecule 20 is a DNA chain called DNA 167.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	B	146	Total	C	N	O	P	0	0
			2977	1414	542	875	146		

- Molecule 21 is a DNA chain called DNA 167.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	N	146	Total	C	N	O	P	0	0
			3009	1425	561	877	146		

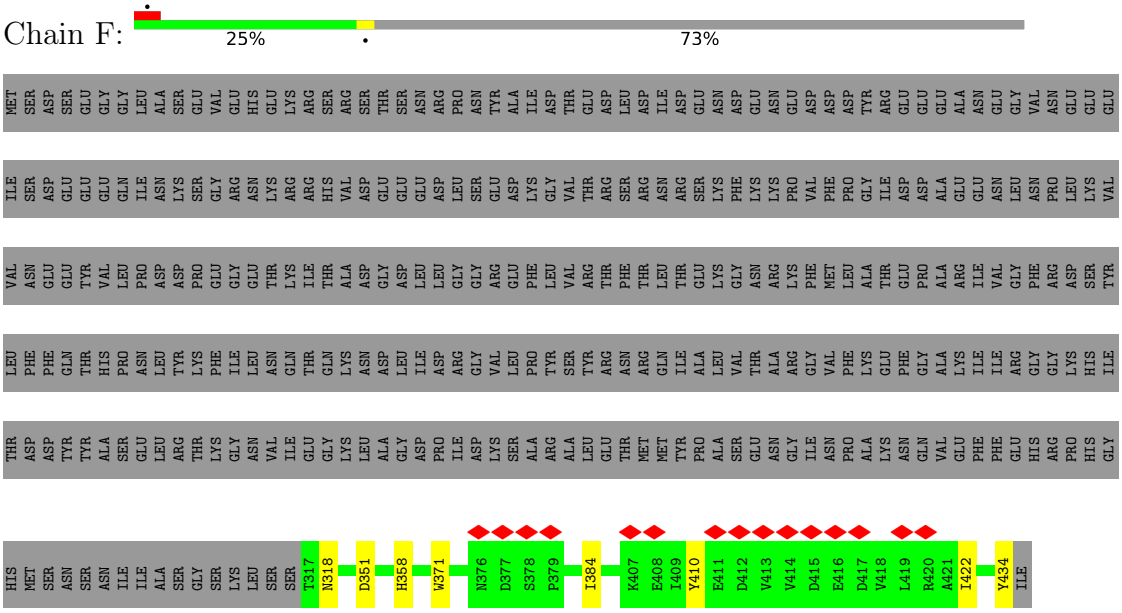
- Molecule 22 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
22	H	1	Total	Zn	0
			1	1	

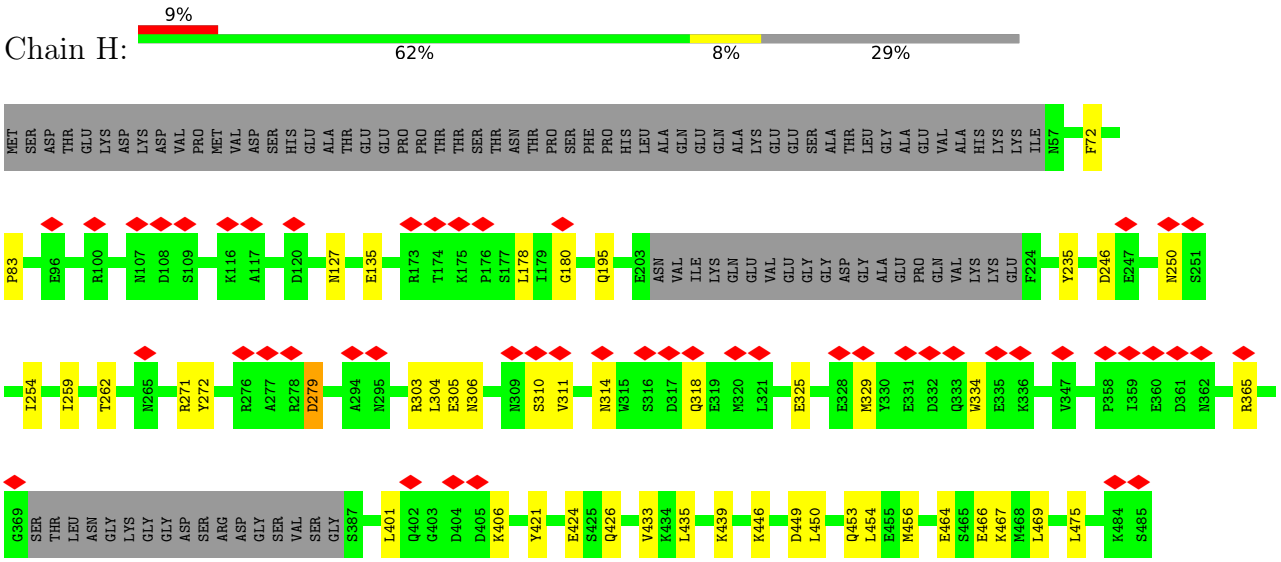
3 Residue-property plots (i)

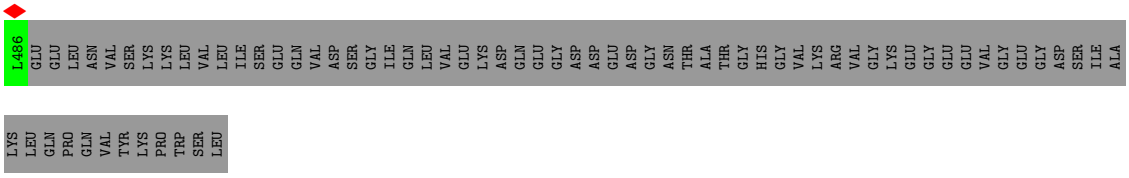
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

• Molecule 1: Chromatin structure-remodeling complex subunit RSC7



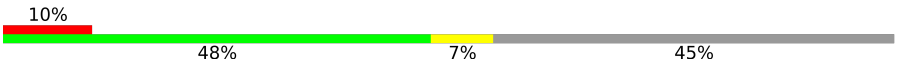
• Molecule 2: Chromatin structure-remodeling complex protein RSC8

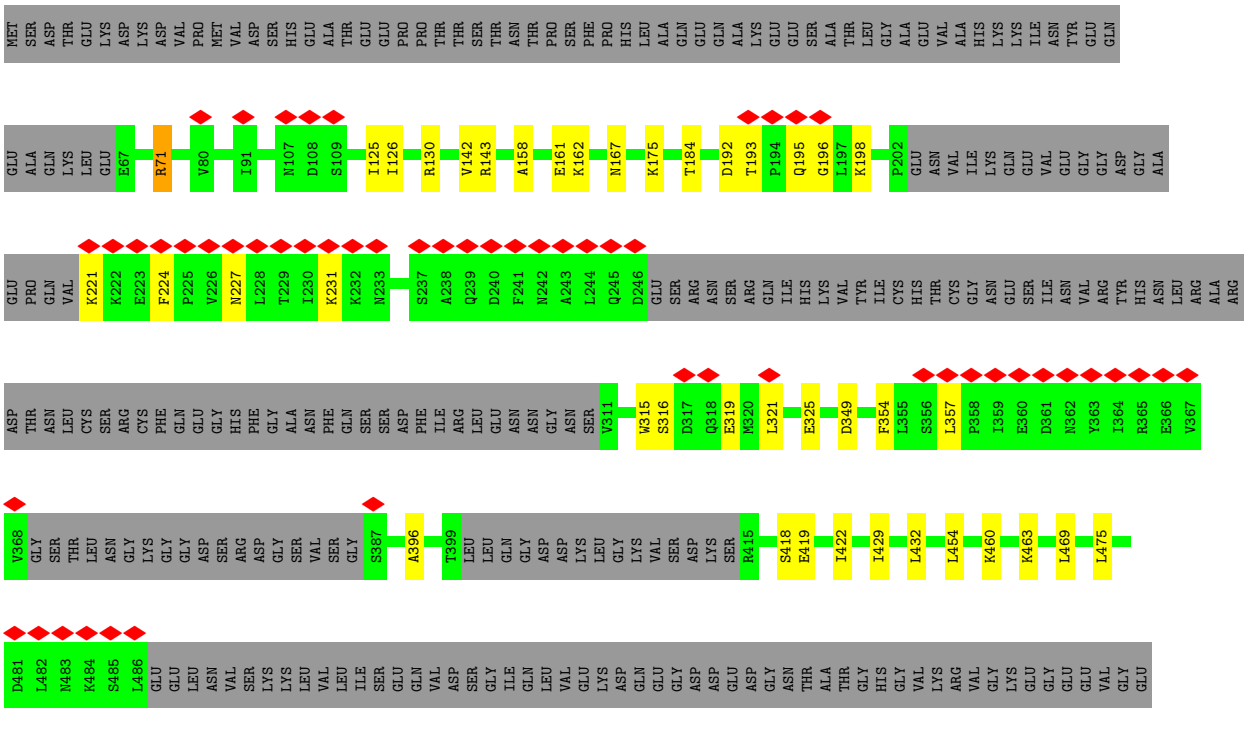




• Molecule 2: Chromatin structure-remodeling complex protein RSC8

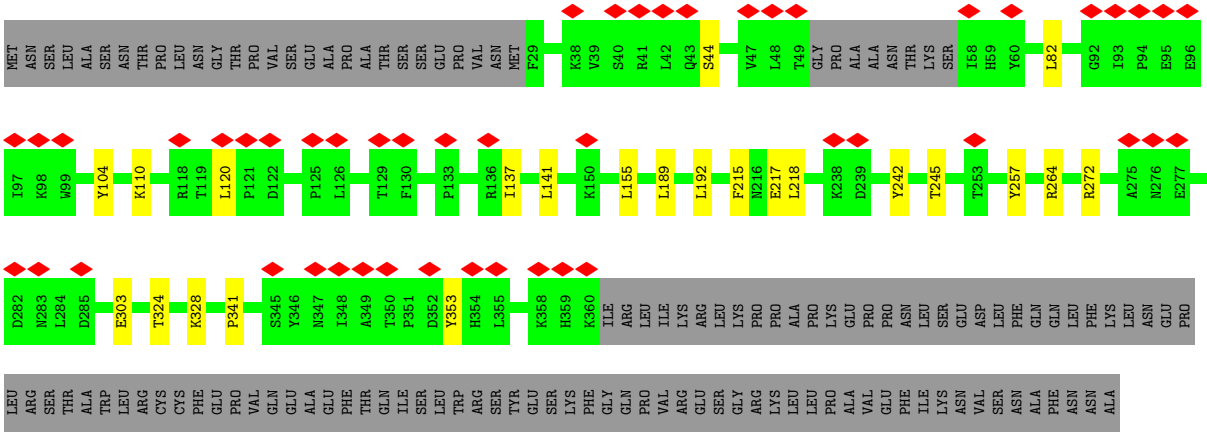
Chain D:

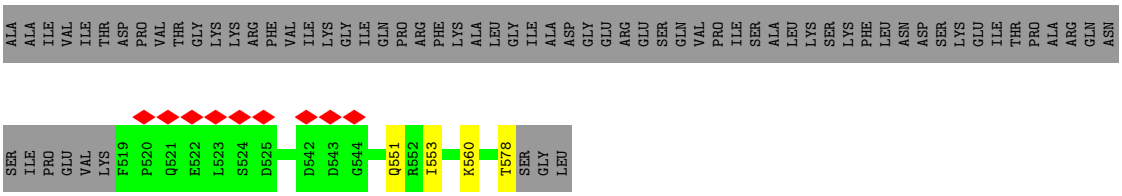




• Molecule 3: Chromatin structure-remodeling complex subunit RSC9

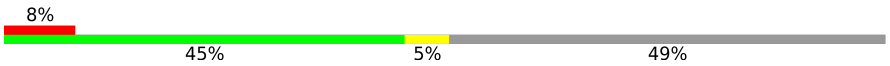
Chain M:

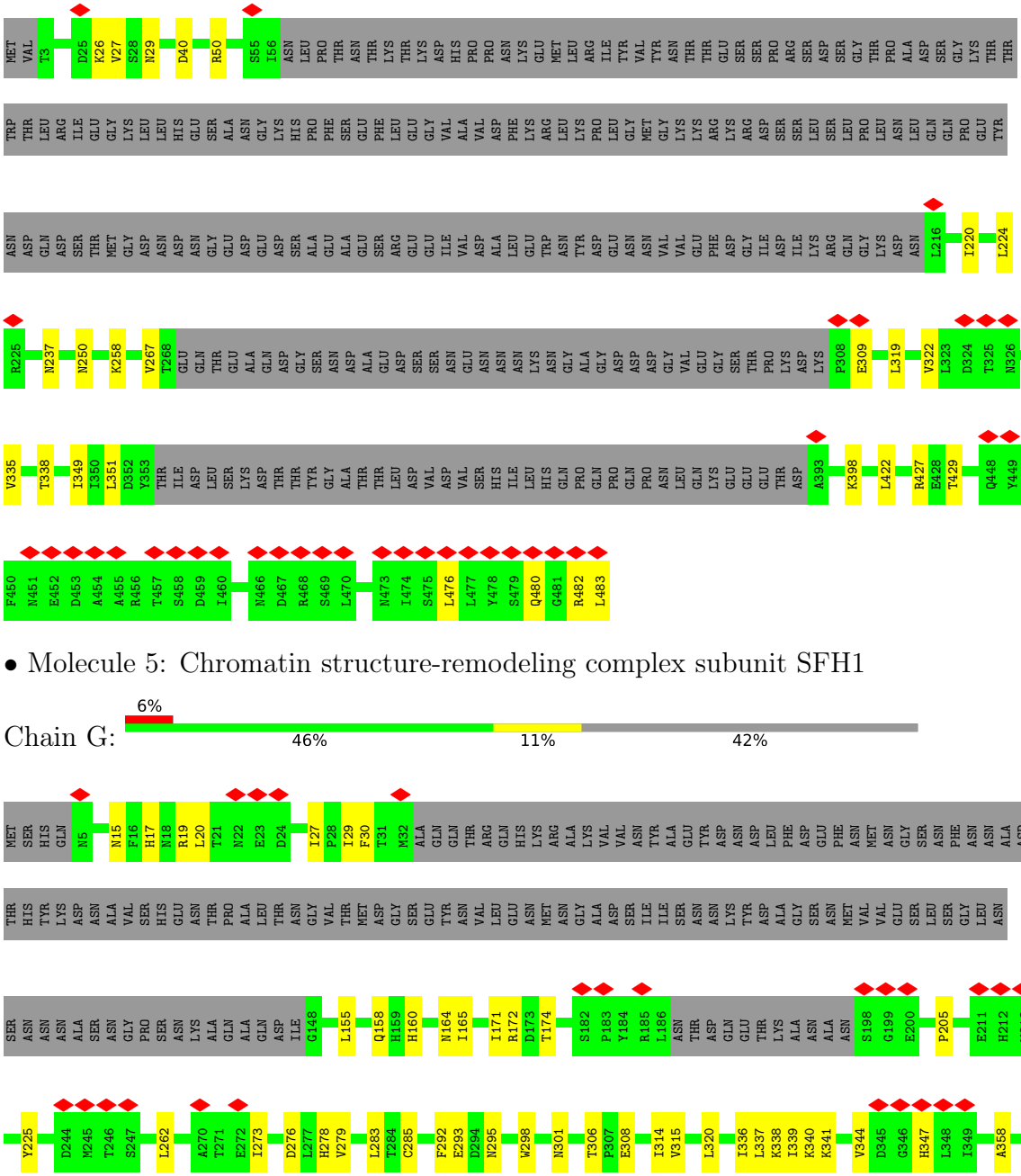




• Molecule 4: Chromatin structure-remodeling complex protein RSC6

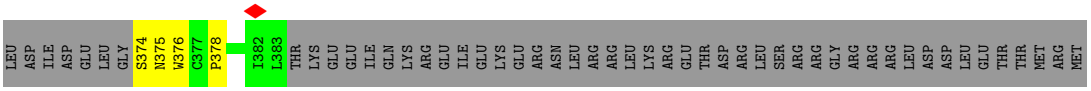
Chain I:





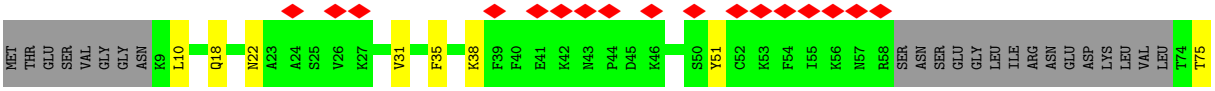
• Molecule 5: Chromatin structure-remodeling complex subunit SFH1

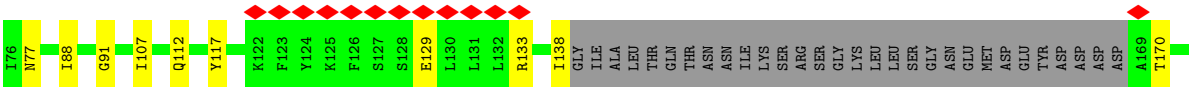
Chain G:

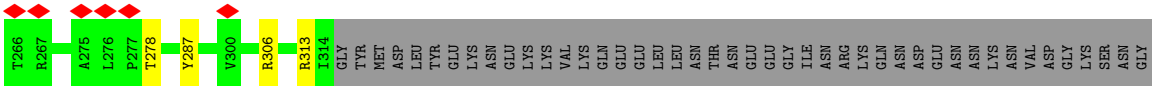


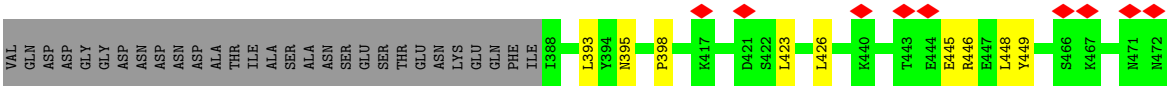
• Molecule 6: Chromatin structure-remodeling complex protein RSC58

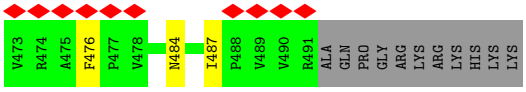
Chain A:





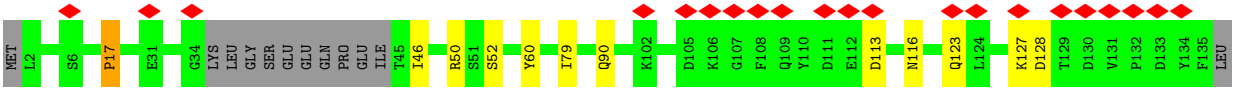


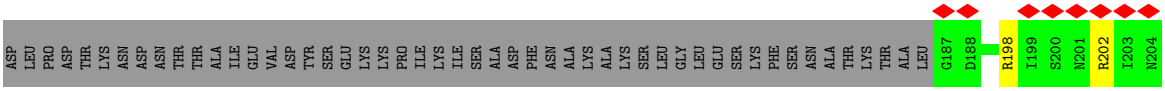


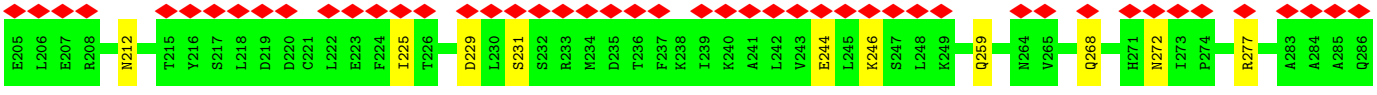


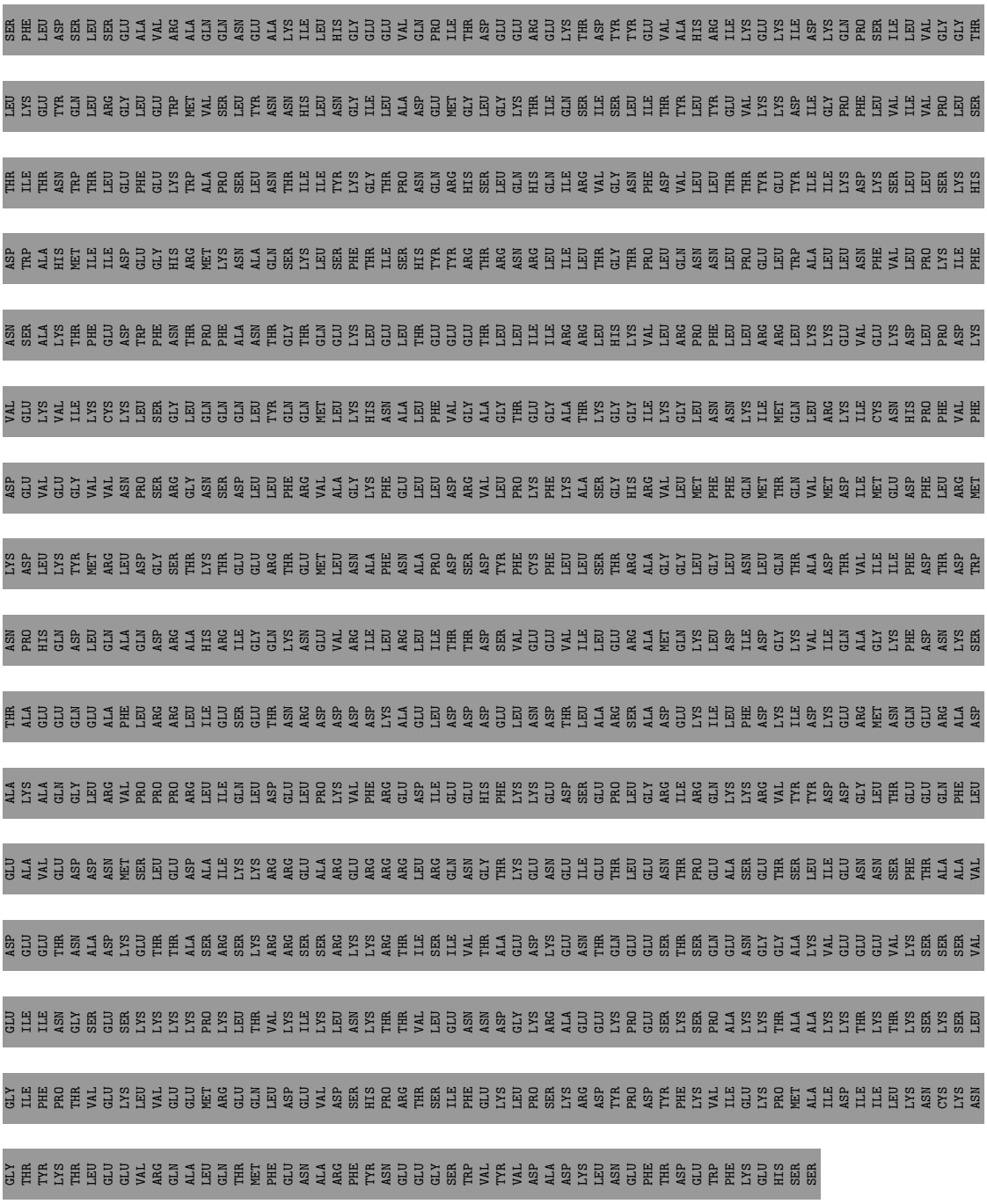
• Molecule 7: Nuclear protein STH1/NPS1

Chain J:



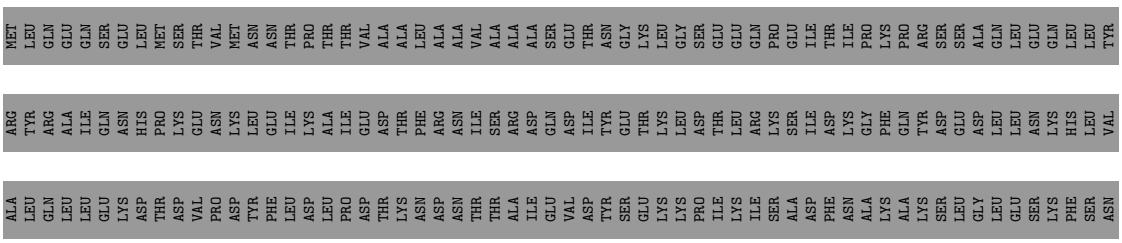


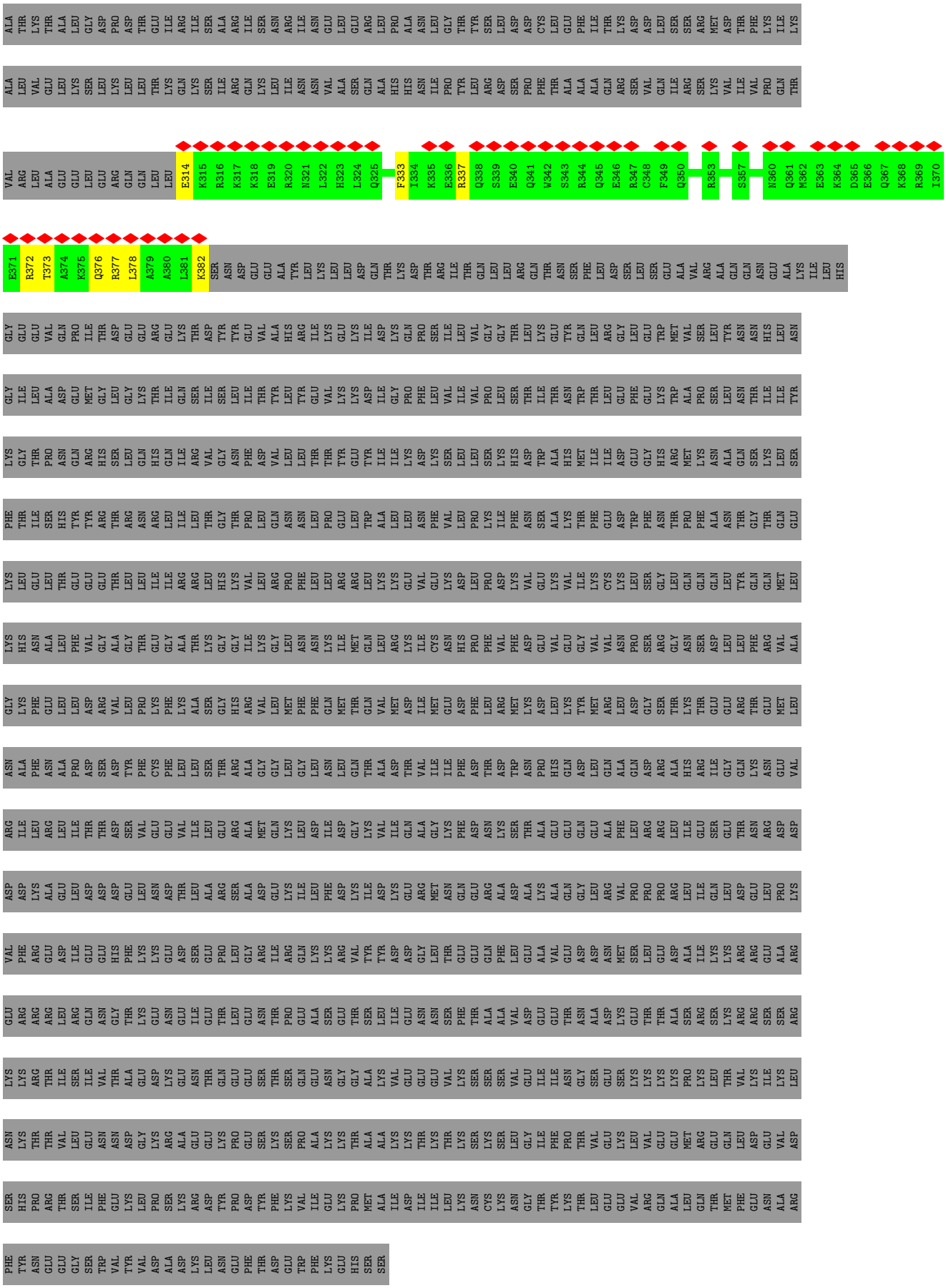




• Molecule 7: Nuclear protein STH1/NPS1

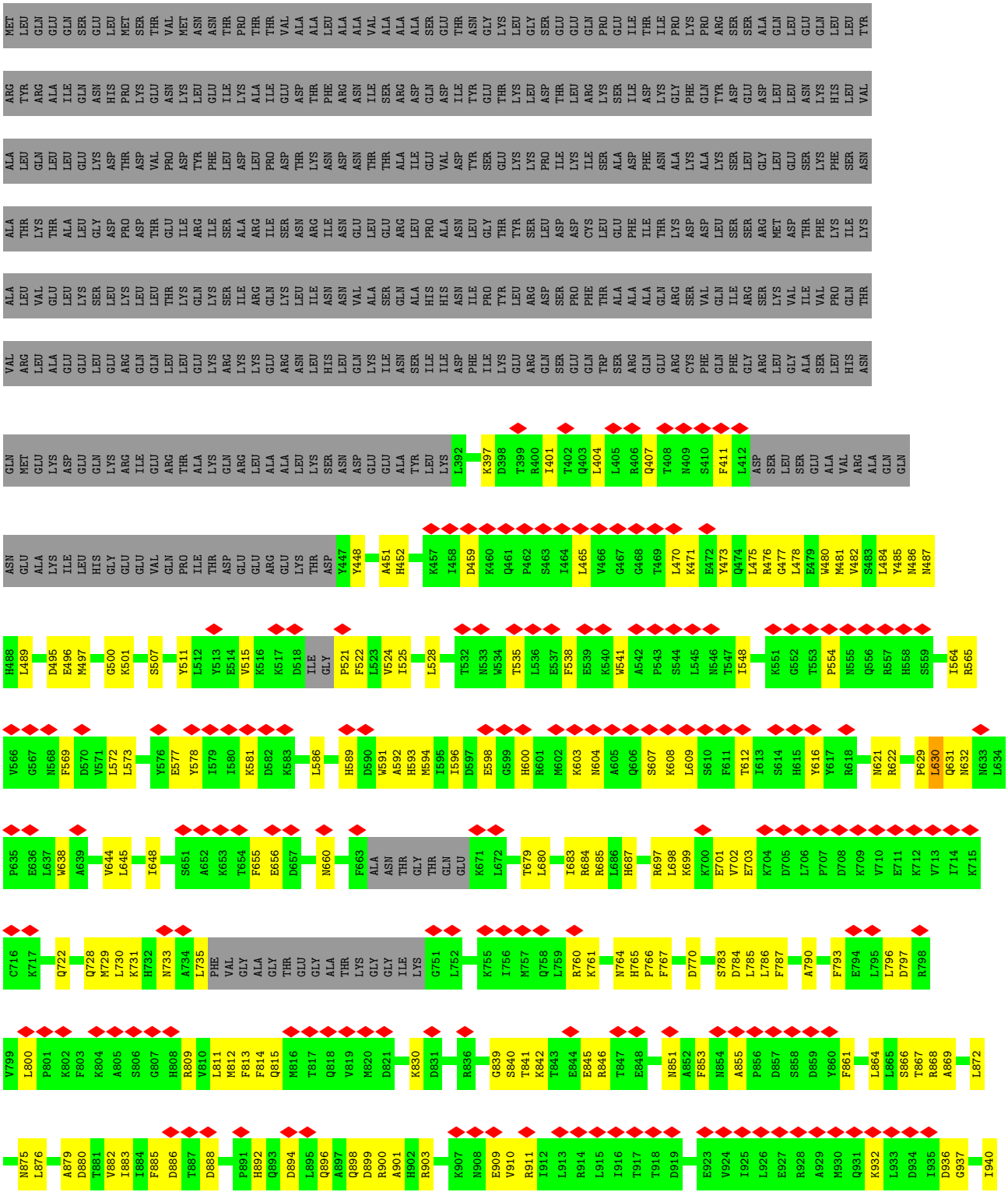
Chain P: 95%

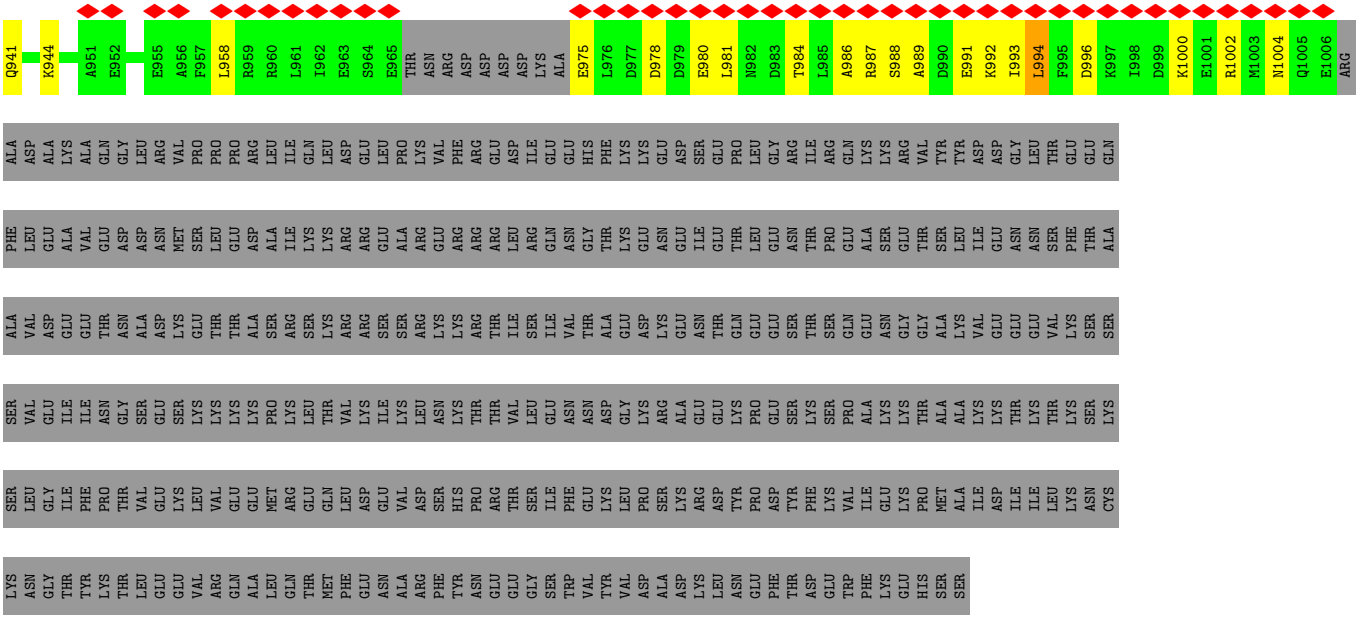



ALA THR LYS THR ALA LEU GLY ASP PRO ASP THR GLU ILE ARG ILE SER ALA ARG ILE SER ASN ARG ILE ASN GLU LEU GLU ARG LEU PRO ALA ASN LEU GLY THR TYR SER LEU ASP ASP CYS LEU GLU PHE ILE THR LYS ASP ASP LEU SER SER ARG MET ASP THR PHE LYS ILE LYS
ALA LEU VAL GLU LEU LYS SER LEU LYS LEU LEU THR LYS GLN LYS SER ILE ARG GLN LYS LEU ILE ASN ASN VAL ALA SER GLN ALA HIS HIS ASN ILE PRO TYR LEU ARG ASP SER PRO PHE THR ALA ALA ALA GLN ARG SER VAL GLN ILE ARG SER LYS VAL ILE VAL PRO GLN THR
VAL ARG LEU ALA GLU GLU LEU GLU ARG GLN GLN LEU LEU E314 K315 R316 K317 K318 E319 R320 N321 L322 H323 L324 Q325 F333 I334 K335 E336 R337 Q338 S339 E340 Q341 W342 S343 R344 Q345 E346 R347 C348 F349 Q350 R353 S357 N360 Q361 E362 E363 K364 D365 E366 Q367 K368 R369 I370
E371 R372 T373 A374 K375 Q376 R377 L378 A379 A380 L381 K382 SER ASN ASP GLU GLU ALA TYR LEU LYS LEU LEU ASP GLN THR LYS ASP THR ARG ILE THR GLN LEU LEU ARG GLN THR ASN SER PHE LEU ASP SER LEU SER GLU ALA VAL ARG ALA GLN GLN ASN GLU ALA LYS ILE LEU HIS
GLY GLU GLU VAL GLN PRO ILE THR ASP GLU GLU ARG GLU LYS THR ASP TYR TYR GLU VAL ALA HIS ARG ILE LYS GLU GLY LYS ILE ASP LYS GLN PRO SER ILE LEU VAL GLY GLY THR LEU LYS GLU TYR GLN LEU ARG GLY LEU GLU TRP MET VAL SER LEU TYR ASN ASN HIS LEU ASN
GLY ILE LEU ALA ASP GLU MET GLY LEU GLY LYS THR ILE GLN SER ILE SER LEU ILE THR TYR LEU TYR GLU VAL LYS LYS ASP ILE GLY PRO PHE LEU VAL ILE LEU VAL PRO LEU SER THR ILE THR ASN TRP THR LEU GLU GLU PHE GLU LYS TRP ALA PRO SER LEU ASN THR ILE ILE TYR
LYS GLY THR PRO ASN GLN ARG HIS SER LEU GLN HIS GLN ILE ARG VAL GLY ASN PHE ASP VAL LEU LEU THR THR TYR GLU TYR ILE ILE LYS ASP LYS SER LEU LEU LEU SER LYS HIS ASP TRP ALA HIS MET ILE ILE ASP GLU GLY HIS ARG MET LYS ASN ALA GLN SER LYS LEU SER
PHE THR ILE SER HIS TYR TYR ARG THR ARG ASN ARG LEU ILE LEU THR GLY GLY THR PRO LEU GLN ASN ASN LEU PRO GLU LEU TRP ALA LEU LEU LEU ASN PHE VAL LEU LEU PRO LYS ILE PHE ASN SER ALA LYS THR PHE GLU ASP TRP PHE ASN THR PRO PHE ALA ASN THR GLY THR GLN GLU
LYS LEU GLU LEU THR GLU GLU GLU THR LEU LEU ILE ILE ARG ARG LEU HIS LYS VAL LEU ARG PRO PHE LEU LEU ARG ARG LEU LYS LYS GLU VAL GLU LYS ASP LEU PRO ASP LYS VAL GLU LYS VAL ILE ILE LYS CYS LYS LEU SER GLY LEU GLN GLN GLN LEU TYR GLN GLN MET LEU
LYS HIS ASN ALA LEU PHE VAL GLY ALA GLY THR GLU GLY ALA THR LYS GLY GLY GLY ILE LYS GLY LEU ASN ASN LYS ILE MET GLN LEU ARG LYS ILE CYS ASN HIS PRO PHE VAL PHE ASP GLU VAL GLU GLY VAL VAL ASN PRO SER ARG GLY ASN SER ASP LEU LEU PHE ARG VAL ALA
GLY LYS PHE GLU LEU LEU ASP ARG VAL LEU HIS ARG VAL LEU MET PHE PHE GLN MET MET THR GLN VAL MET ASP ILE MET GLU ASP PHE LEU ARG MET LYS ASP LEU LYS TYR MET ARG LEU ASP GLY SER THR LYS THR GLU GLU ARG THR GLU MET LEU
ASN ALA PHE ASN ALA PRO ASP SER ASP TYR PHE CYS PHE LEU LEU SER THR ARG ALA GLY GLY LEU GLY LEU ASN LEU GLN THR ALA ASP THR VAL ILE ILE PHE ASP THR ASP TRP ASN PRO HIS GLN ASP LEU GLN ALA GLN ASP ARG ALA HIS ARG ILE GLY GLN LYS ASN GLU VAL
ARG ILE LEU ARG LEU ILE THR THR ASP SER VAL GLU GLU LEU GLU ASP ILE ASP GLY LYS VAL ILE GLN ALA GLY LYS PHE ASP ASN LYS SER THR ALA GLU GLU GLN GLU ALA PHE LEU ARG ARG LEU ILE GLU SER GLU THR ASN ARG ASP
ASP ASP LYS ALA GLU LEU GLU ASP ILE LEU PHE ASP LYS ILE ASP LYS GLU ARG MET ASN GLN GLU ARG ALA ASP ALA ALA LYS ALA GLN GLY LEU ASP ARG VAL PRO PRO PRO ARG LEU LEU ILE GLN LEU LEU ASP GLU ILE LYS ASP GLU LEU PRO LYS
VAL PHE ARG GLU ASP ILE GLU GLU HIS PHE LYS LYS GLU ASP SER GLU PRO LEU GLY ARG ILE ARG GLN LYS LYS ARG VAL TYR TYR ASP GLY LEU THR GLU GLU GLN PHE LEU GLU ALA VAL GLU ASP ASP ASN MET SER LEU GLU GLU ASP ALA ILE LYS LYS ARG ARG GLU ALA ARG
GLU ARG ARG LEU ARG ILE THR LYS GLU ASN GLY THR LEU GLN ASN ASN SER GLU THR SER LEU ILE GLU ASN SER PHE THR ALA ALA VAL ASP GLU GLU THR ASN ALA ASP LYS GLU THR THR ALA SER ARG ARG SER SER ARG
LYS LYS ARG THR ILE SER ILE ALA GLU ASP LYS GLU ASN THR GLN GLU GLU SER THR SER GLN GLU ALA SER GLU THR LEU ILE GLU GLU VAL LYS SER SER VAL GLU ILE ILE ASN GLY SER GLU SER LYS LYS LYS LYS PRO VAL LYS LEU THR VAL LYS ILE LYS LEU
ASN LYS THR THR VAL LEU GLU ASN ASP GLY LYS ARG ALA GLU GLU PRO SER LYS SER ALA ALA LYS LYS THR LYS THR LYS SER LYS SER LEU GLY ILE PHE PRO THR VAL GLU GLU MET ARG GLU GLN LEU ASP GLU VAL ASP
SER HIS PRO ARG THR SER ILE LYS LEU PRO GLU TYR PHE VAL ILE GLU LYS ALA ILE LEU ASP ILE ILE LEU LYS ASN CYS LYS ASN GLY THR TYR LYS THR LEU GLU GLU VAL ARG GLN ALA LEU GLN THR MET PHE GLU ASN ALA ARG
PHE TYR ASN GLU GLU GLY SER TRP VAL TYR VAL ASP ALA ASP LYS LEU GLU ASN GLU PHE THR ASP GLU TRP PHE LYS GLU HIS SER SER

• Molecule 7: Nuclear protein STH1/NPS1

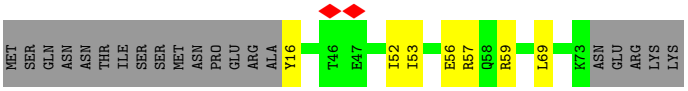
Chain Q:





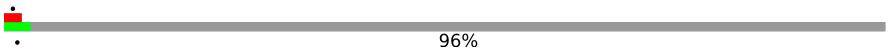
• Molecule 8: High temperature lethal protein 1

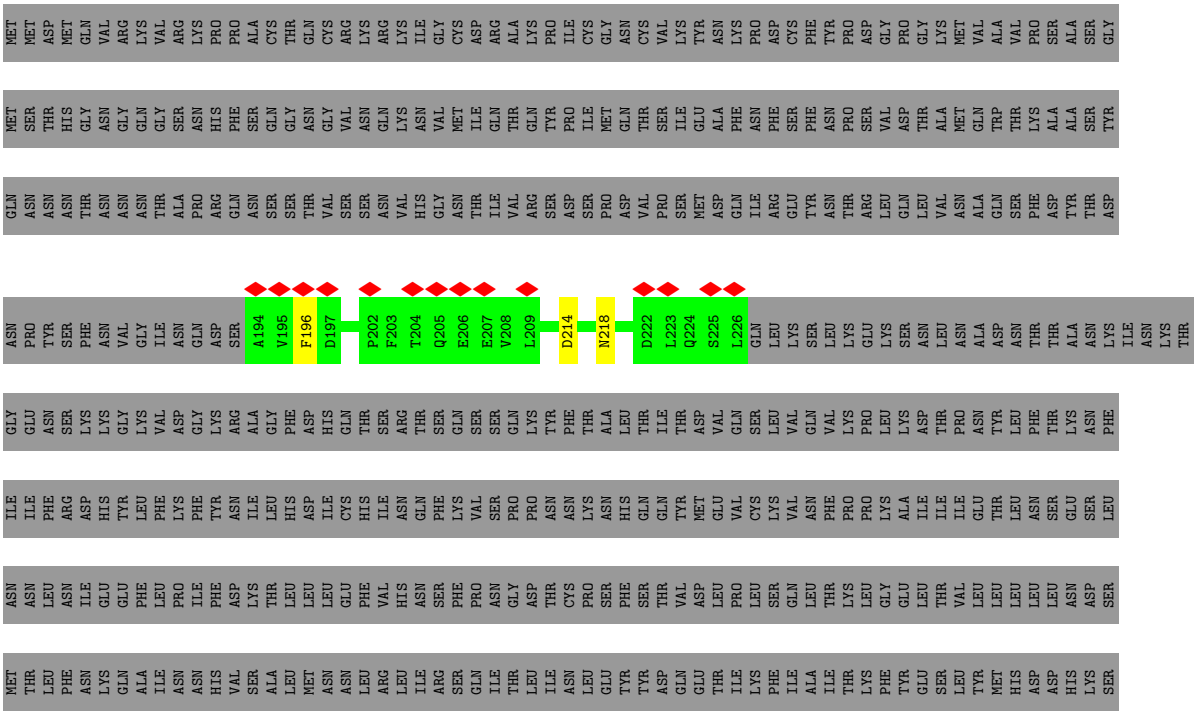
Chain E:

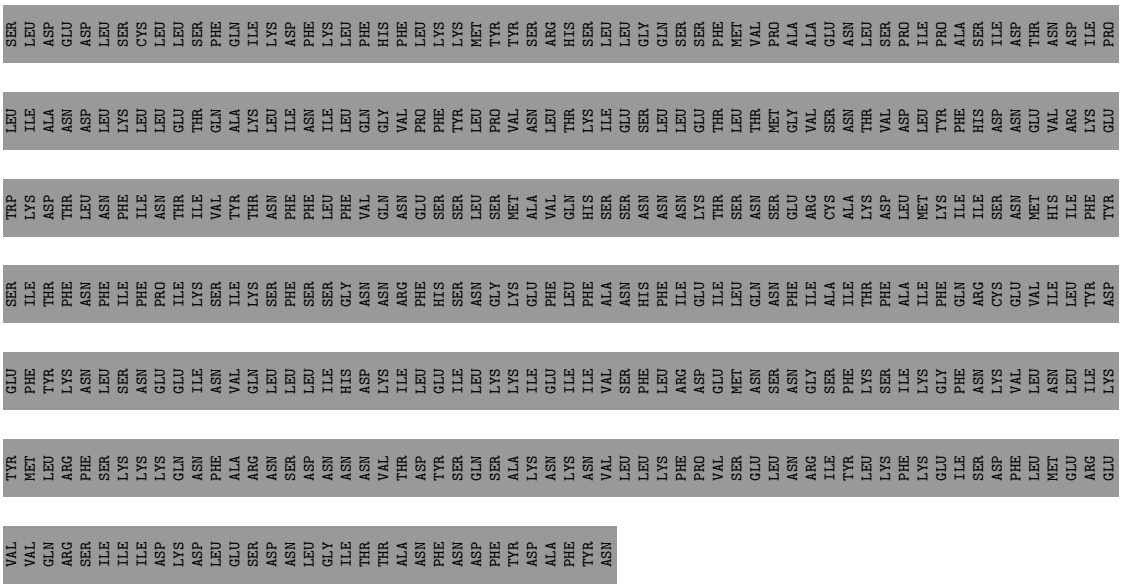


• Molecule 9: Chromatin structure-remodeling complex protein RSC30

Chain C:

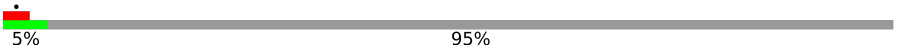


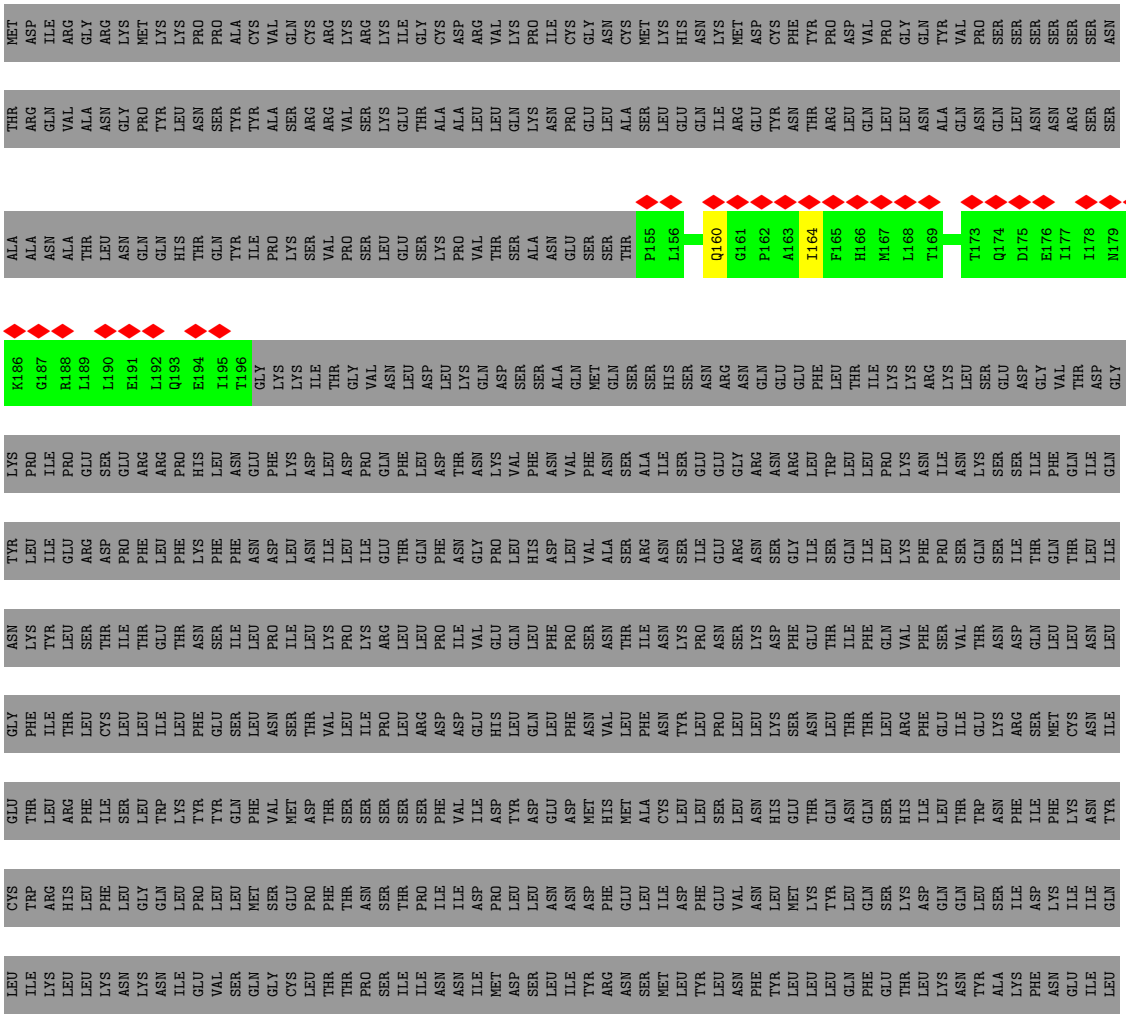


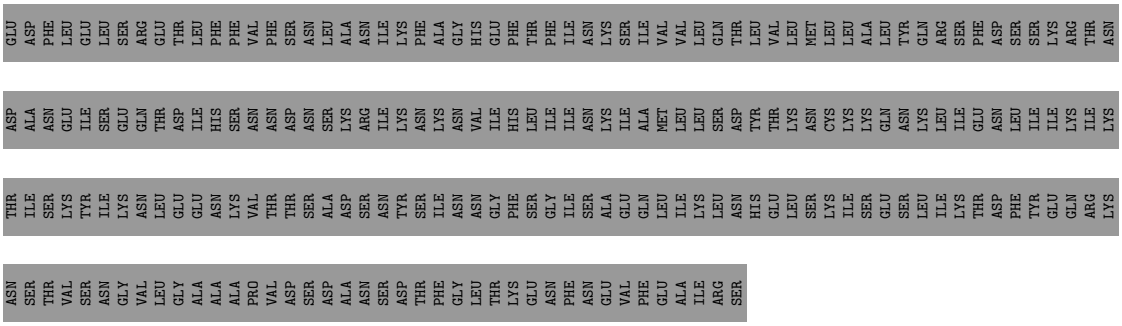


• Molecule 10: Chromatin structure-remodeling complex protein RSC3

Chain K:

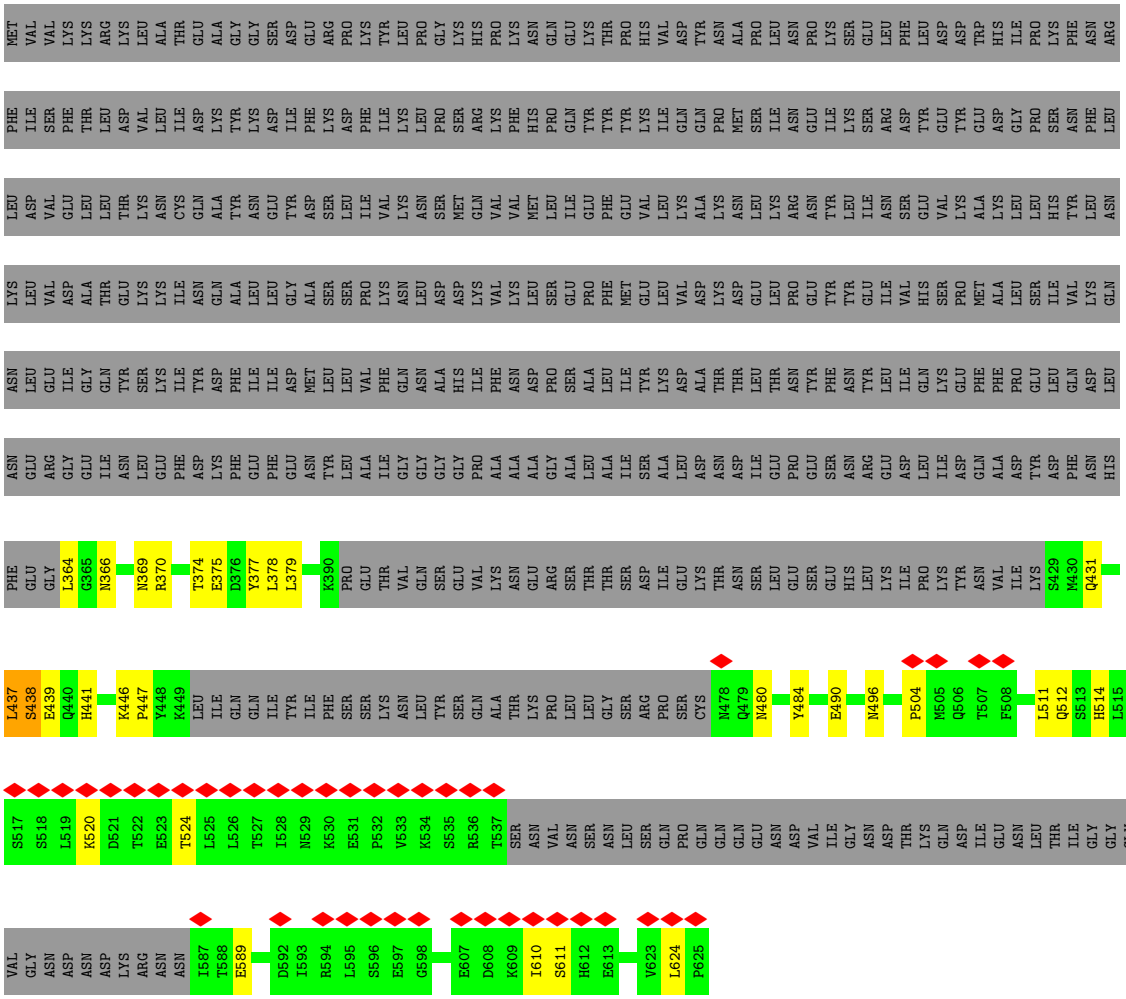






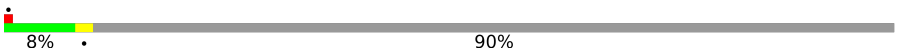
• Molecule 11: Chromatin structure-remodeling complex subunit RSC4

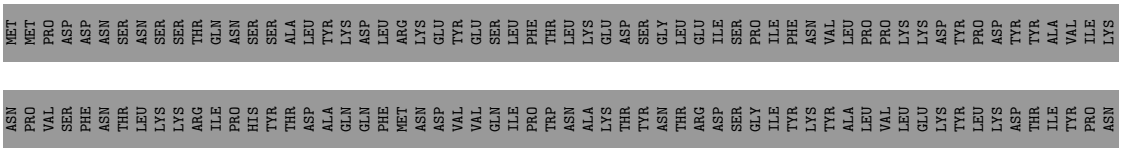
Chain X:

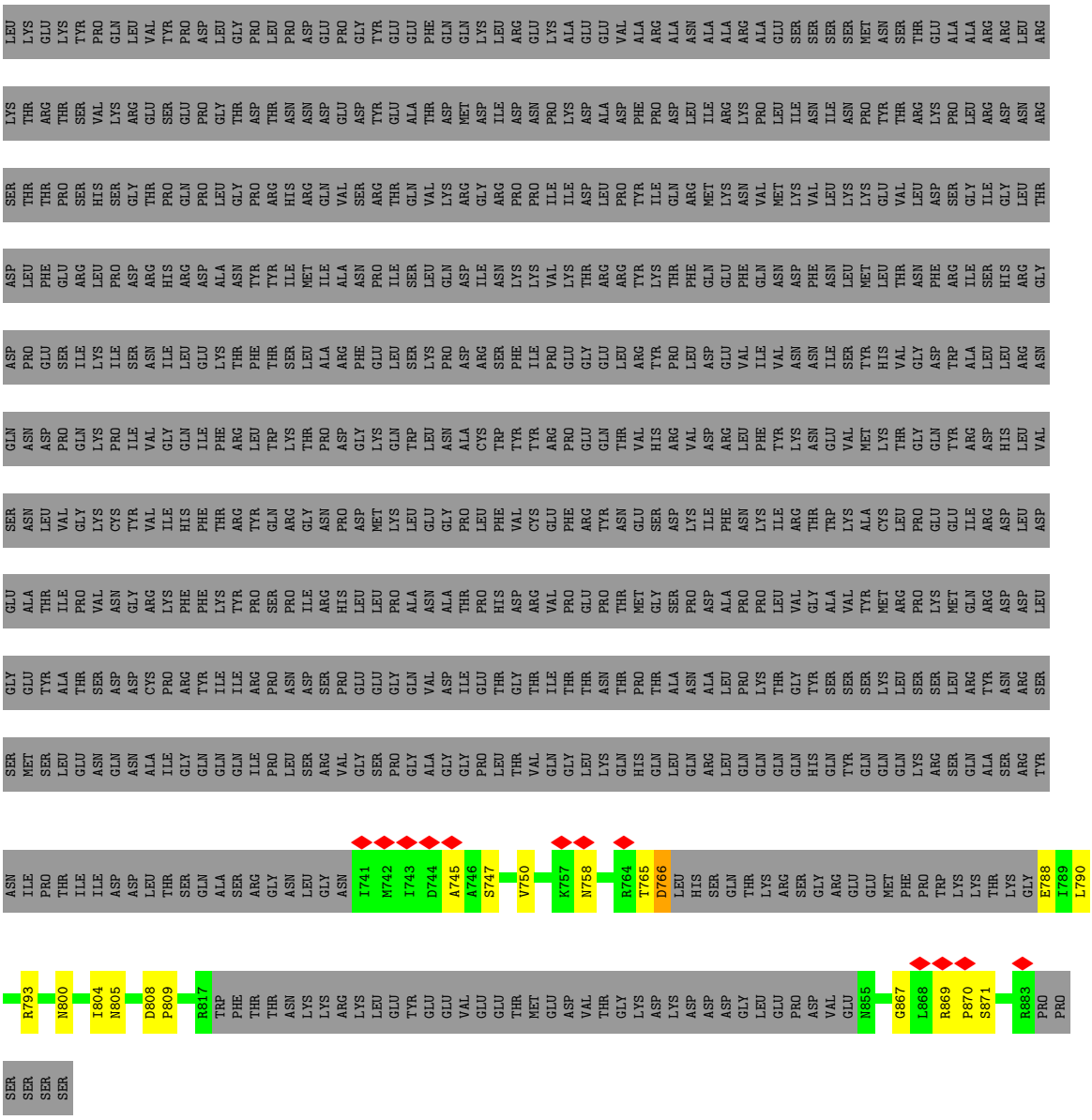


• Molecule 12: Chromatin structure-remodeling complex subunit RSC2

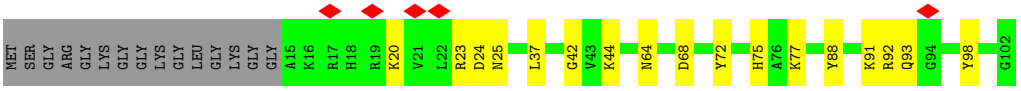
Chain L:



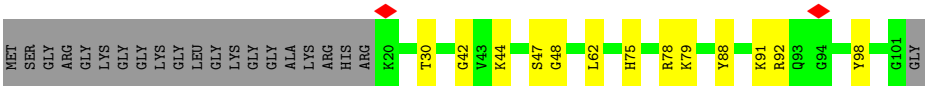




• Molecule 13: Histone H4

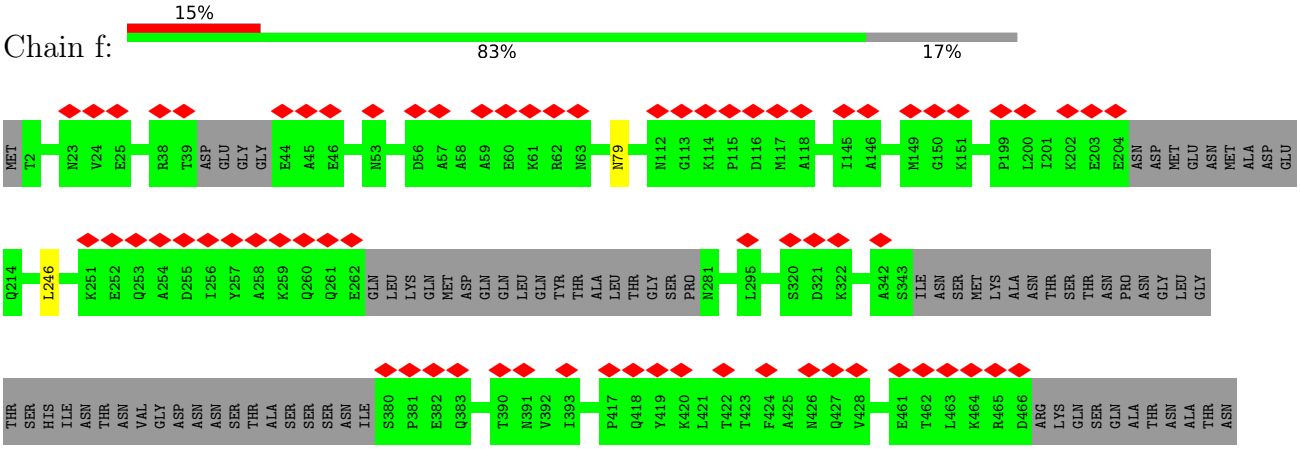


• Molecule 13: Histone H4



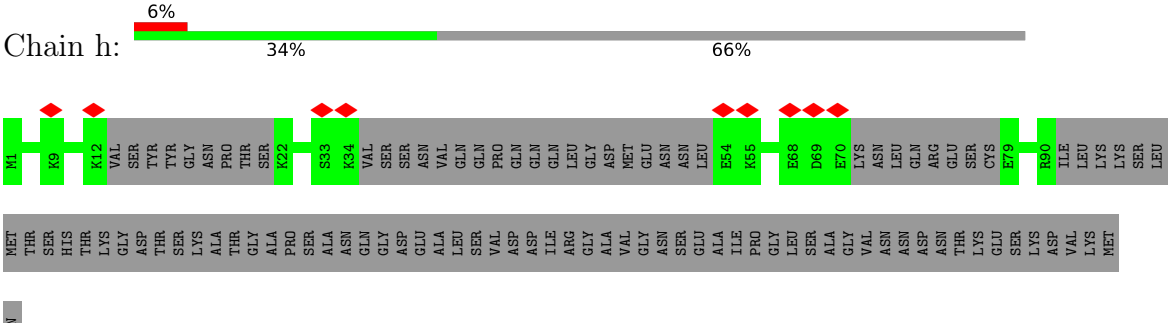
• Molecule 14: Actin-related protein 7

Chain f:



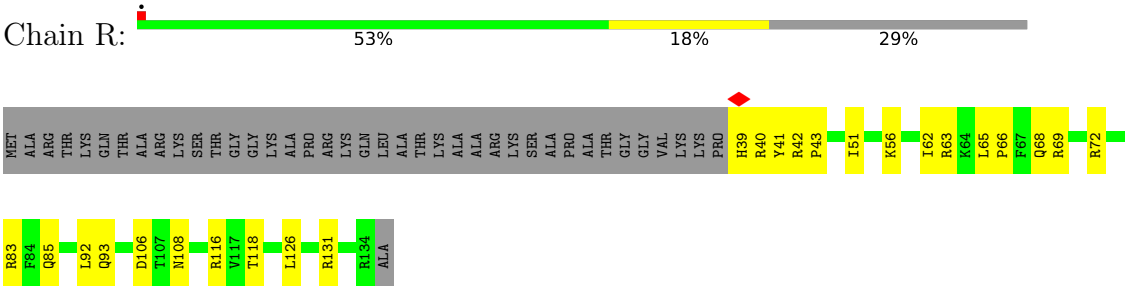
• Molecule 15: Regulator of Ty1 transposition protein 102

Chain h:



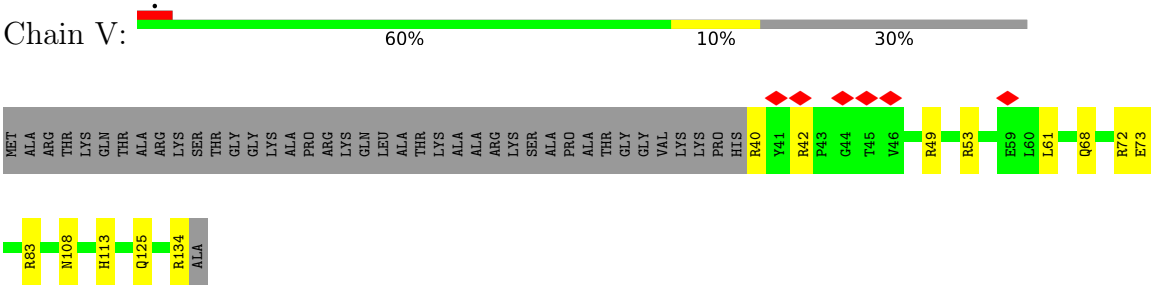
• Molecule 16: Histone H3.2

Chain R:



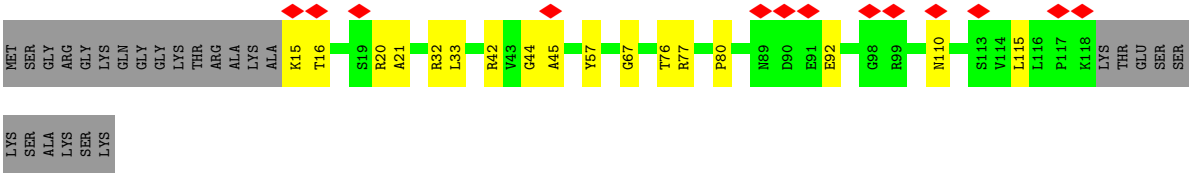
• Molecule 16: Histone H3.2

Chain V:



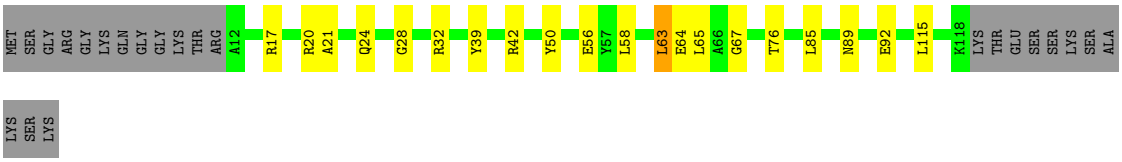
• Molecule 17: Histone H2A

Chain T:



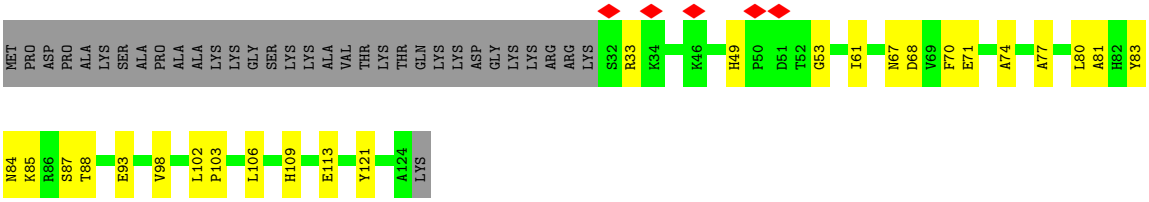
• Molecule 17: Histone H2A

Chain O:



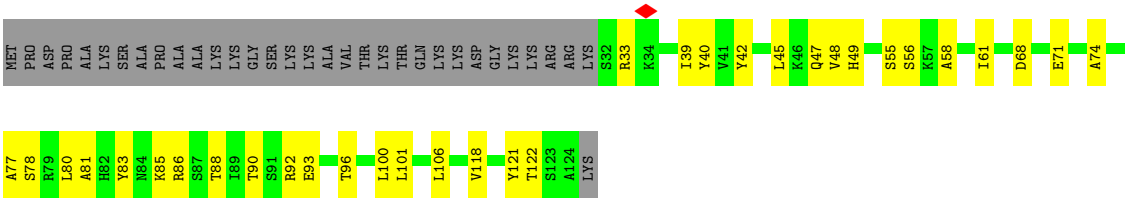
• Molecule 18: Histone H4

Chain U:



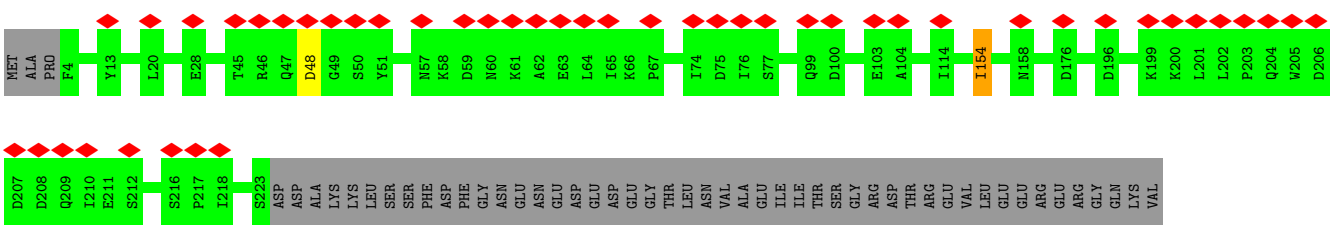
• Molecule 18: Histone H4

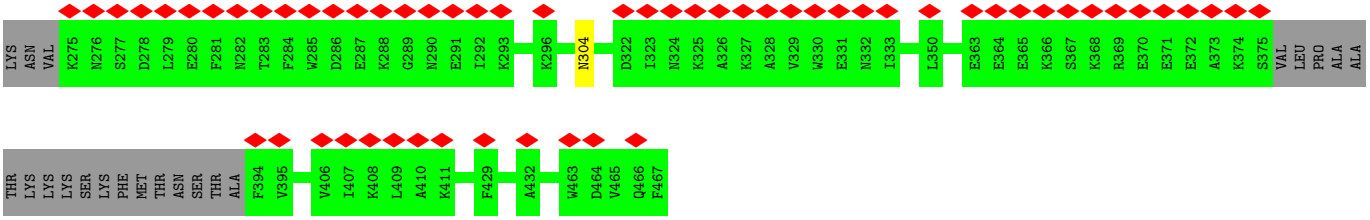
Chain Y:



• Molecule 19: Actin-like protein ARP9

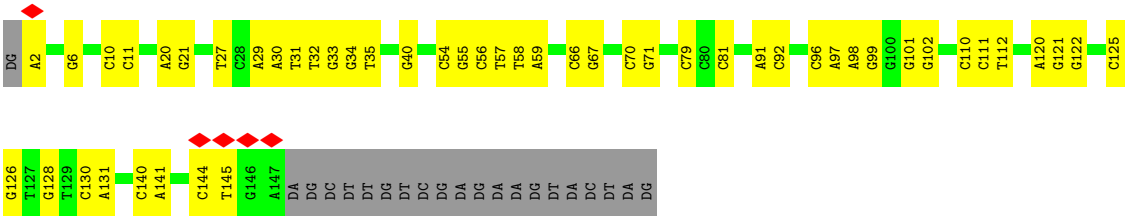
Chain g:





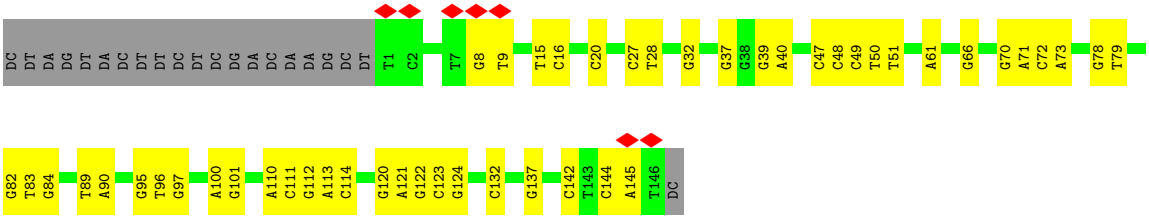
• Molecule 20: DNA 167

Chain B:



• Molecule 21: DNA 167

Chain N:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	24146	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 ($e^-/Å^2$)	2	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.099	Depositor
Minimum map value	-0.013	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.022	Depositor
Map size (Å)	385.2, 385.2, 385.2	wwPDB
Map dimensions	180, 180, 180	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	2.14, 2.14, 2.14	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

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	F	0.28	0/983	0.57	0/1337
2	D	0.30	0/2557	0.50	0/3442
2	H	0.30	0/3275	0.53	1/4409 (0.0%)
3	M	0.31	0/3113	0.58	0/4215
4	I	0.28	0/1976	0.56	0/2685
5	G	0.29	0/2039	0.56	0/2769
6	A	0.30	0/3077	0.54	0/4169
7	J	0.29	0/1836	0.55	1/2480 (0.0%)
7	P	0.30	0/598	0.45	0/789
7	Q	0.35	0/4580	0.60	2/6167 (0.0%)
8	E	0.27	0/480	0.56	0/643
9	C	0.28	0/272	0.44	0/366
10	K	0.27	0/356	0.50	0/483
11	X	0.31	0/1243	0.57	0/1672
12	L	0.28	0/681	0.62	1/921 (0.1%)
13	S	0.52	0/664	0.62	0/889
13	W	0.50	0/716	0.63	0/955
14	f	0.30	0/3295	0.55	2/4454 (0.0%)
15	h	0.28	0/501	0.53	0/669
16	R	0.51	0/805	0.62	0/1079
16	V	0.47	0/794	0.55	0/1064
17	O	0.48	0/833	0.66	1/1124 (0.1%)
17	T	0.45	0/814	0.56	0/1099
18	U	0.48	0/736	0.56	0/991
18	Y	0.49	0/728	0.59	0/983
19	g	0.28	0/3261	0.53	1/4421 (0.0%)
20	B	1.22	1/3336 (0.0%)	1.02	0/5142
21	N	1.22	1/3378 (0.0%)	1.03	1/5216 (0.0%)
All	All	0.56	2/46927 (0.0%)	0.66	10/64633 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
20	B	2	DA	C1'-N9	-5.43	1.39	1.47
21	N	100	DA	N9-C4	-5.07	1.34	1.37

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
14	f	246	LEU	CA-CB-CG	8.84	135.63	115.30
14	f	246	LEU	CB-CG-CD1	-6.64	99.72	111.00
19	g	154	ILE	CG1-CB-CG2	-6.54	97.01	111.40
17	O	63	LEU	CB-CG-CD2	-6.39	100.13	111.00
7	Q	888	ASP	CB-CG-OD1	6.36	124.03	118.30
7	Q	630	LEU	CA-CB-CG	6.21	129.59	115.30
7	J	17	PRO	N-CA-CB	5.80	110.26	103.30
2	H	279	ASP	CB-CG-OD2	5.24	123.02	118.30
12	L	766	ASP	CB-CG-OD2	5.17	122.95	118.30
21	N	15	DT	P-O3'-C3'	5.03	125.73	119.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	964	0	919	5	0
2	D	2510	0	2542	33	0
2	H	3215	0	3195	42	0
3	M	3058	0	3127	24	0
4	I	1944	0	1964	23	0
5	G	1996	0	1948	32	0
6	A	3007	0	3045	51	0
7	J	1814	0	1777	22	0
7	P	592	0	610	15	0
7	Q	4503	0	4567	243	0
8	E	477	0	491	5	0
9	C	269	0	279	2	0
10	K	347	0	342	2	0
11	X	1220	0	1192	30	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
12	L	669	0	693	18	0
13	S	657	0	706	36	0
13	W	708	0	758	30	0
14	f	3219	0	3240	0	0
15	h	490	0	467	0	0
16	R	794	0	830	52	0
16	V	784	0	823	31	0
17	O	823	0	881	74	0
17	T	804	0	859	51	0
18	U	725	0	744	66	0
18	Y	717	0	723	86	0
19	g	3191	0	3179	0	0
20	B	2977	0	1639	169	0
21	N	3009	0	1640	157	0
22	H	1	0	0	0	0
All	All	45484	0	43180	842	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 13.

All (842) 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)
7:Q:473:TYR:CZ	7:Q:702:VAL:HA	1.27	1.58
7:Q:883:ILE:CG2	7:Q:885:PHE:CE2	1.94	1.51
16:V:42:ARG:CZ	20:B:144:DC:H3'	1.41	1.49
20:B:56:DC:C5'	7:Q:528:LEU:HD12	1.44	1.47
11:X:439:GLU:OE1	11:X:490:GLU:CG	1.64	1.45
18:U:33:ARG:NH1	21:N:28:DT:H5"	1.20	1.42
7:Q:883:ILE:HG22	7:Q:885:PHE:CE2	1.53	1.42
7:Q:986:ALA:CB	7:Q:992:LYS:HG2	1.50	1.38
13:S:78:ARG:CB	20:B:102:DG:OP1	1.72	1.38
18:Y:33:ARG:NE	21:N:124:DG:H5'	1.35	1.38
18:U:33:ARG:NH1	21:N:28:DT:C5'	1.88	1.37
20:B:54:DC:C4'	7:Q:868:ARG:HG2	1.54	1.34
18:Y:33:ARG:HE	21:N:124:DG:C5'	1.42	1.32
20:B:54:DC:H4'	7:Q:868:ARG:CG	1.58	1.32
7:Q:548:ILE:CD1	7:Q:572:LEU:HD23	1.61	1.30
16:R:85:GLN:HG2	21:N:50:DT:OP1	1.15	1.26
20:B:58:DT:OP2	7:Q:554:PRO:HD3	1.29	1.26
17:O:32:ARG:NE	20:B:30:DA:OP2	1.68	1.25

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:R:83:ARG:HG2	21:N:51:DT:C5'	1.67	1.23
6:A:238:GLU:OE2	7:J:212:ASN:ND2	1.71	1.22
18:U:88:THR:OG1	21:N:40:DA:OP1	1.58	1.22
17:O:42:ARG:HB3	21:N:113:DA:OP1	1.37	1.21
7:Q:548:ILE:HD12	7:Q:572:LEU:CD2	1.71	1.21
21:N:95:DG:OP2	7:Q:608:LYS:CB	1.87	1.20
7:Q:478:LEU:HD21	7:Q:507:SER:OG	1.37	1.20
20:B:56:DC:H5"	7:Q:528:LEU:CD1	1.72	1.20
18:Y:55:SER:HA	20:B:20:DA:OP1	1.38	1.20
7:Q:473:TYR:CZ	7:Q:702:VAL:CA	2.24	1.20
21:N:95:DG:OP2	7:Q:608:LYS:HB2	1.03	1.19
13:W:98:TYR:OH	18:U:68:ASP:OD2	1.54	1.19
17:O:42:ARG:CG	21:N:113:DA:H5"	1.73	1.18
12:L:765:THR:HG22	12:L:790:LEU:HD21	1.23	1.18
17:O:42:ARG:HG2	21:N:113:DA:H5"	1.24	1.16
20:B:58:DT:OP2	7:Q:554:PRO:CD	1.92	1.16
20:B:58:DT:OP1	7:Q:554:PRO:HG2	1.45	1.16
17:O:42:ARG:HG2	21:N:113:DA:C5'	1.76	1.16
20:B:56:DC:C5'	7:Q:528:LEU:CD1	2.23	1.16
18:U:33:ARG:HH12	21:N:28:DT:C5'	1.53	1.15
7:Q:883:ILE:HG21	7:Q:885:PHE:CE2	1.71	1.15
3:M:272:ARG:CD	7:P:314:GLU:OE2	1.95	1.13
18:Y:33:ARG:CD	21:N:124:DG:H5'	1.78	1.13
7:Q:473:TYR:OH	7:Q:702:VAL:HA	1.50	1.12
13:S:78:ARG:CA	20:B:102:DG:OP1	1.97	1.12
16:R:63:ARG:CZ	20:B:91:DA:H5"	1.77	1.11
13:S:78:ARG:HB3	20:B:102:DG:OP1	1.39	1.11
7:Q:473:TYR:CE2	7:Q:702:VAL:HA	1.83	1.11
18:Y:42:TYR:OH	20:B:21:DG:P	2.10	1.10
13:S:88:TYR:CZ	18:U:83:TYR:CE1	2.39	1.10
20:B:55:DG:P	7:Q:839:GLY:HA3	1.92	1.09
16:R:63:ARG:HD2	20:B:91:DA:H4'	1.13	1.09
20:B:55:DG:H2"	7:Q:840:SER:HB3	1.36	1.08
13:S:88:TYR:CE1	18:U:83:TYR:CE1	2.42	1.07
16:V:42:ARG:CZ	20:B:144:DC:C3'	2.31	1.07
13:S:91:LYS:NZ	18:Y:71:GLU:OE1	1.86	1.07
7:Q:986:ALA:HB1	7:Q:992:LYS:HG2	1.10	1.07
16:R:83:ARG:CG	21:N:51:DT:H5"	1.84	1.06
11:X:439:GLU:OE1	11:X:490:GLU:HG2	0.91	1.06
7:Q:883:ILE:HG21	7:Q:885:PHE:CZ	1.91	1.06
7:Q:909:GLU:OE1	7:Q:987:ARG:HD2	1.56	1.05

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:S:88:TYR:CD1	18:U:83:TYR:CZ	2.44	1.05
16:R:40:ARG:O	21:N:145:DA:OP2	1.75	1.04
21:N:96:DT:OP1	7:Q:607:SER:HB3	1.55	1.04
17:T:45:ALA:N	20:B:112:DT:OP1	1.91	1.04
17:O:17:ARG:HG3	20:B:31:DT:P	1.98	1.03
17:O:17:ARG:NE	20:B:31:DT:OP2	1.90	1.03
16:V:42:ARG:NE	20:B:144:DC:H3'	1.71	1.03
17:O:32:ARG:CZ	20:B:30:DA:OP2	2.06	1.03
7:Q:473:TYR:CD1	7:Q:702:VAL:HG12	1.95	1.02
7:Q:815:GLN:N	7:Q:886:ASP:OD2	1.91	1.02
13:W:88:TYR:CE1	18:Y:83:TYR:CE1	2.47	1.02
13:S:78:ARG:HG2	20:B:102:DG:P	2.00	1.02
17:O:21:ALA:HB2	18:Y:121:TYR:HB2	1.41	1.02
17:O:42:ARG:NE	21:N:113:DA:C5'	2.22	1.02
6:A:187:TYR:OH	6:A:235:THR:HG21	1.57	1.02
12:L:750:VAL:HG11	12:L:788:GLU:OE1	1.59	1.02
21:N:96:DT:H3'	7:Q:604:ASN:ND2	1.73	1.02
18:Y:42:TYR:OH	20:B:21:DG:O5'	1.78	1.01
18:Y:86:ARG:HD2	20:B:40:DG:OP1	1.60	1.01
16:R:56:LYS:NZ	20:B:10:DC:OP2	1.93	1.01
16:R:85:GLN:CG	21:N:50:DT:OP1	2.08	1.01
7:Q:564:ILE:HG12	7:Q:569:PHE:CE2	1.95	1.01
7:Q:986:ALA:HB1	7:Q:992:LYS:CG	1.91	1.01
17:O:28:GLY:HA3	20:B:30:DA:H5"	1.40	1.00
7:Q:883:ILE:CG2	7:Q:885:PHE:CZ	2.42	1.00
17:O:42:ARG:CB	21:N:113:DA:OP1	2.09	1.00
6:A:190:PRO:HB3	11:X:437:LEU:CD2	1.91	1.00
21:N:96:DT:H3'	7:Q:604:ASN:HD21	1.16	1.00
7:Q:548:ILE:CD1	7:Q:572:LEU:CD2	2.32	0.99
18:Y:33:ARG:NE	21:N:124:DG:C5'	2.08	0.99
18:Y:42:TYR:CE1	20:B:21:DG:OP2	2.14	0.99
20:B:56:DC:O5'	7:Q:528:LEU:CD1	2.11	0.99
13:S:88:TYR:CE1	18:U:83:TYR:CZ	2.52	0.98
6:A:190:PRO:HB3	11:X:437:LEU:HD22	1.43	0.97
18:Y:33:ARG:HD3	21:N:124:DG:P	2.04	0.97
13:W:88:TYR:CD1	18:Y:83:TYR:CZ	2.52	0.97
12:L:765:THR:HG22	12:L:790:LEU:CD2	1.94	0.96
21:N:95:DG:P	7:Q:608:LYS:HB2	2.04	0.96
6:A:238:GLU:CD	7:J:212:ASN:ND2	2.18	0.96
17:O:32:ARG:NH2	20:B:29:DA:H2"	1.80	0.96
16:V:40:ARG:NH1	21:N:83:DT:O2	1.99	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:T:42:ARG:NH1	21:N:39:DG:C4'	2.30	0.95
16:V:40:ARG:NH2	21:N:83:DT:O4'	1.98	0.95
17:O:42:ARG:NE	21:N:113:DA:H5"	1.80	0.95
16:V:42:ARG:NH2	20:B:144:DC:H3'	1.81	0.94
17:O:42:ARG:CD	21:N:113:DA:C5'	2.46	0.94
17:T:42:ARG:NH1	21:N:39:DG:H4'	1.82	0.93
20:B:55:DG:C2'	7:Q:840:SER:HB3	1.98	0.93
16:V:42:ARG:HD3	20:B:144:DC:O5'	1.69	0.93
7:Q:986:ALA:HB3	7:Q:992:LYS:HG2	1.47	0.93
7:P:372:ARG:O	7:P:376:GLN:HG3	1.69	0.93
17:O:42:ARG:CD	21:N:113:DA:H5"	1.99	0.93
20:B:58:DT:OP1	7:Q:554:PRO:CG	2.15	0.93
17:O:20:ARG:NH1	20:B:32:DT:OP1	2.01	0.92
16:R:40:ARG:O	21:N:145:DA:P	2.28	0.92
17:T:42:ARG:CD	21:N:39:DG:H4'	2.00	0.92
17:O:42:ARG:CG	21:N:113:DA:C5'	2.42	0.92
13:S:78:ARG:HA	20:B:102:DG:OP1	1.69	0.91
11:X:439:GLU:OE1	11:X:490:GLU:CD	2.09	0.91
7:Q:986:ALA:CB	7:Q:992:LYS:CG	2.45	0.91
7:Q:989:ALA:HA	7:Q:992:LYS:CG	2.00	0.91
16:V:42:ARG:HD3	20:B:144:DC:P	2.11	0.91
17:O:17:ARG:CD	20:B:31:DT:OP2	2.19	0.91
7:Q:991:GLU:O	7:Q:994:LEU:N	2.02	0.90
13:W:88:TYR:CZ	18:Y:83:TYR:CE1	2.59	0.90
16:R:65:LEU:HB2	20:B:92:DC:OP2	1.71	0.90
18:Y:55:SER:CA	20:B:20:DA:OP1	2.19	0.90
16:V:42:ARG:NH2	20:B:144:DC:C3'	2.35	0.90
7:Q:883:ILE:CG2	7:Q:885:PHE:HE2	1.60	0.90
7:Q:991:GLU:O	7:Q:994:LEU:HB2	1.71	0.90
17:T:42:ARG:HD3	21:N:39:DG:H4'	1.54	0.89
21:N:96:DT:OP1	7:Q:607:SER:CB	2.20	0.89
16:R:83:ARG:HG2	21:N:51:DT:H5"	0.91	0.89
18:Y:42:TYR:HE1	20:B:21:DG:OP2	1.54	0.89
7:Q:473:TYR:OH	7:Q:701:GLU:O	1.90	0.89
18:U:33:ARG:NH1	21:N:28:DT:H5'	1.88	0.89
13:S:88:TYR:CD1	18:U:83:TYR:OH	2.26	0.89
20:B:56:DC:H5"	7:Q:528:LEU:HD12	0.90	0.88
20:B:56:DC:O5'	7:Q:528:LEU:HD12	1.68	0.88
20:B:57:DT:H4'	7:Q:581:LYS:NZ	1.89	0.87
17:T:42:ARG:CZ	21:N:39:DG:H4'	2.05	0.87
18:Y:33:ARG:HD3	21:N:124:DG:H5'	1.56	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:272:ARG:HD2	7:P:314:GLU:OE2	1.74	0.87
13:S:78:ARG:CG	20:B:102:DG:OP1	2.23	0.87
17:O:39:TYR:CE1	18:Y:74:ALA:HB1	2.08	0.87
20:B:55:DG:OP1	7:Q:839:GLY:HA3	1.74	0.87
18:Y:33:ARG:CD	21:N:124:DG:C5'	2.49	0.87
17:O:64:GLU:HG2	18:Y:48:VAL:HG11	1.57	0.86
17:O:76:THR:N	21:N:132:DC:OP1	2.08	0.86
5:G:279:VAL:HG21	5:G:339:ILE:HD13	1.57	0.86
12:L:765:THR:CG2	12:L:790:LEU:HD21	2.04	0.86
20:B:58:DT:P	7:Q:554:PRO:CG	2.62	0.86
18:U:33:ARG:HH11	21:N:28:DT:H5"	1.36	0.86
17:O:42:ARG:NE	21:N:113:DA:H5'	1.90	0.85
17:T:57:TYR:CZ	18:U:109:HIS:HB3	2.11	0.85
17:O:64:GLU:HG2	18:Y:48:VAL:CG1	2.06	0.85
13:W:88:TYR:CE1	18:Y:83:TYR:CZ	2.65	0.84
16:R:69:ARG:NH2	20:B:91:DA:OP1	2.10	0.84
13:W:88:TYR:CD1	18:Y:83:TYR:OH	2.31	0.84
7:Q:989:ALA:HA	7:Q:992:LYS:CD	2.06	0.84
16:R:66:PRO:HG3	20:B:91:DA:OP1	1.76	0.84
13:W:92:ARG:NH2	18:Y:100:LEU:O	2.11	0.84
16:R:83:ARG:HH11	21:N:51:DT:H5'	1.41	0.83
20:B:57:DT:OP1	7:Q:578:TYR:CE2	2.30	0.83
17:T:76:THR:O	18:U:53:GLY:N	2.10	0.83
20:B:55:DG:H2"	7:Q:840:SER:CB	2.07	0.83
7:Q:473:TYR:OH	7:Q:702:VAL:CA	2.22	0.83
16:R:63:ARG:HD2	20:B:91:DA:C4'	2.03	0.83
7:Q:814:PHE:C	7:Q:886:ASP:OD2	2.16	0.83
4:I:476:LEU:HD21	4:I:480:GLN:NE2	1.94	0.82
17:T:42:ARG:O	18:U:88:THR:HG23	1.78	0.82
18:U:33:ARG:CZ	21:N:28:DT:H5'	2.09	0.82
20:B:58:DT:P	7:Q:554:PRO:HG2	2.19	0.82
7:Q:883:ILE:HG22	7:Q:885:PHE:CD2	2.14	0.82
18:Y:56:SER:CB	20:B:20:DA:OP2	2.28	0.82
7:P:373:THR:O	7:P:377:ARG:HG3	1.79	0.82
18:Y:42:TYR:OH	20:B:21:DG:OP2	1.96	0.82
20:B:54:DC:C5'	7:Q:868:ARG:HG2	2.09	0.82
7:Q:473:TYR:CE2	7:Q:702:VAL:CA	2.58	0.82
17:O:28:GLY:CA	20:B:30:DA:H5"	2.10	0.81
17:O:42:ARG:HG2	21:N:113:DA:O5'	1.79	0.81
7:Q:989:ALA:HA	7:Q:992:LYS:HG3	1.61	0.81
4:I:476:LEU:CD2	4:I:480:GLN:NE2	2.45	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Q:815:GLN:H	7:Q:886:ASP:CG	1.84	0.80
7:Q:989:ALA:HA	7:Q:992:LYS:HD2	1.61	0.80
6:A:218:PRO:HA	11:X:364:LEU:HD23	1.62	0.80
17:O:64:GLU:HA	18:Y:48:VAL:HG11	1.64	0.80
17:O:39:TYR:CD1	18:Y:74:ALA:HB1	2.17	0.79
17:O:76:THR:HG1	21:N:132:DC:P	2.06	0.79
17:O:63:LEU:HD21	18:Y:45:LEU:HA	1.64	0.79
3:M:272:ARG:NE	7:P:314:GLU:OE2	2.16	0.79
16:R:40:ARG:O	21:N:144:DC:O3'	2.00	0.79
17:O:42:ARG:HE	21:N:113:DA:H5"	1.43	0.79
18:U:88:THR:CB	21:N:40:DA:OP1	2.30	0.79
20:B:56:DC:O5'	7:Q:528:LEU:HD13	1.80	0.79
13:S:78:ARG:CG	20:B:102:DG:P	2.69	0.79
18:Y:86:ARG:CD	20:B:40:DG:OP1	2.31	0.78
18:U:33:ARG:CZ	21:N:28:DT:C5'	2.61	0.78
7:Q:473:TYR:CE1	7:Q:702:VAL:HG12	2.18	0.78
17:T:45:ALA:HB2	20:B:112:DT:OP2	1.83	0.78
5:G:273:ILE:HD11	5:G:340:LYS:HG2	1.65	0.78
18:Y:42:TYR:CZ	20:B:21:DG:OP2	2.36	0.78
7:Q:909:GLU:CD	7:Q:987:ARG:HD2	2.04	0.78
7:Q:815:GLN:N	7:Q:886:ASP:CG	2.37	0.78
5:G:344:VAL:O	5:G:347:HIS:CE1	2.37	0.77
11:X:377:TYR:O	11:X:511:LEU:HA	1.84	0.77
16:R:63:ARG:NH2	20:B:91:DA:H5"	1.98	0.77
18:U:88:THR:N	21:N:40:DA:OP1	2.16	0.77
17:T:15:LYS:HD2	21:N:32:DG:P	2.24	0.77
17:T:15:LYS:HD2	21:N:32:DG:OP1	1.85	0.77
17:O:67:GLY:HA3	18:Y:49:HIS:CD2	2.20	0.77
3:M:272:ARG:HD3	7:P:314:GLU:OE2	1.84	0.77
17:T:57:TYR:CD1	18:U:113:GLU:HG3	2.20	0.77
18:Y:33:ARG:HD3	21:N:124:DG:OP1	1.85	0.77
7:Q:548:ILE:HD12	7:Q:572:LEU:HD23	0.82	0.76
17:T:57:TYR:OH	18:U:109:HIS:HB3	1.85	0.76
17:O:76:THR:OG1	21:N:132:DC:P	2.43	0.76
13:W:72:TYR:CE1	18:Y:80:LEU:HD21	2.20	0.76
17:O:21:ALA:CB	18:Y:121:TYR:HB2	2.14	0.76
7:Q:991:GLU:O	7:Q:994:LEU:CB	2.33	0.76
2:H:254:ILE:HG22	2:H:254:ILE:O	1.84	0.76
20:B:54:DC:OP1	7:Q:815:GLN:O	2.02	0.76
21:N:95:DG:OP2	7:Q:608:LYS:HD2	1.85	0.75
16:R:42:ARG:H	21:N:144:DC:H5'	1.49	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:R:83:ARG:NH1	21:N:50:DT:H1'	2.01	0.75
17:O:42:ARG:CD	21:N:113:DA:H5'	2.15	0.75
16:R:63:ARG:CD	20:B:91:DA:H4'	2.05	0.74
16:R:83:ARG:NH1	21:N:51:DT:H5'	2.03	0.74
7:P:333:PHE:HB3	7:P:337:ARG:HH12	1.52	0.74
18:Y:56:SER:HB2	20:B:20:DA:OP2	1.87	0.74
21:N:97:DG:OP1	7:Q:631:GLN:NE2	2.20	0.74
18:Y:33:ARG:HE	21:N:124:DG:C4'	2.00	0.73
17:O:32:ARG:CG	20:B:30:DA:OP2	2.36	0.73
7:Q:473:TYR:CG	7:Q:702:VAL:HG12	2.23	0.73
18:Y:33:ARG:HD3	21:N:124:DG:C5'	2.14	0.72
20:B:56:DC:H4'	7:Q:577:GLU:OE1	1.90	0.72
16:R:39:HIS:N	21:N:145:DA:OP1	2.23	0.72
12:L:765:THR:CG2	12:L:790:LEU:CD2	2.63	0.72
16:R:83:ARG:HH11	21:N:50:DT:H1'	1.54	0.72
17:T:42:ARG:HH11	21:N:39:DG:C4'	2.00	0.72
18:Y:33:ARG:HD3	21:N:123:DC:O3'	1.88	0.72
18:Y:33:ARG:CB	21:N:124:DG:H5"	2.20	0.72
7:Q:993:ILE:O	7:Q:996:ASP:N	2.14	0.72
11:X:366:ASN:O	11:X:369:ASN:CG	2.28	0.72
21:N:97:DG:P	7:Q:631:GLN:NE2	2.63	0.71
21:N:96:DT:P	7:Q:607:SER:HB3	2.30	0.71
6:A:187:TYR:HH	6:A:235:THR:HG21	1.55	0.71
18:U:33:ARG:HH12	21:N:28:DT:H5"	1.14	0.71
6:A:238:GLU:OE1	7:J:212:ASN:ND2	2.23	0.71
13:S:91:LYS:HZ1	18:Y:71:GLU:CD	1.91	0.71
4:I:476:LEU:HD21	4:I:480:GLN:HE22	1.53	0.71
16:V:83:ARG:NH2	21:N:101:DG:OP1	2.24	0.71
20:B:79:DC:O2	21:N:70:DG:N2	2.23	0.71
17:O:32:ARG:HH22	20:B:29:DA:H2"	1.55	0.70
17:O:42:ARG:HE	21:N:113:DA:C5'	1.98	0.70
5:G:15:ASN:HD22	5:G:174:THR:HA	1.56	0.70
13:W:91:LYS:HZ1	18:U:71:GLU:CD	1.94	0.70
20:B:6:DG:H1	21:N:142:DC:H42	1.40	0.70
16:V:40:ARG:HA	21:N:84:DG:OP1	1.91	0.70
16:R:65:LEU:N	20:B:92:DC:OP2	2.25	0.70
16:R:83:ARG:NH1	21:N:51:DT:C5'	2.55	0.70
17:T:92:GLU:OE1	18:U:106:LEU:HG	1.92	0.69
20:B:56:DC:OP2	7:Q:840:SER:CB	2.39	0.69
7:Q:991:GLU:HB3	7:Q:994:LEU:HD12	1.75	0.69
16:R:65:LEU:CB	20:B:92:DC:OP2	2.39	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:R:83:ARG:CG	21:N:51:DT:C5'	2.58	0.69
17:O:17:ARG:HG3	20:B:31:DT:OP1	1.91	0.69
20:B:57:DT:OP1	7:Q:578:TYR:CZ	2.42	0.69
13:S:78:ARG:HG2	20:B:102:DG:OP2	1.91	0.69
17:T:42:ARG:HH11	21:N:39:DG:H4'	1.58	0.69
17:T:42:ARG:HD3	21:N:39:DG:C4'	2.24	0.68
18:Y:39:ILE:HD11	21:N:123:DC:OP2	1.92	0.68
7:Q:473:TYR:HD1	7:Q:697:ARG:HD2	1.59	0.68
17:T:45:ALA:HB2	20:B:112:DT:P	2.34	0.68
6:A:218:PRO:HA	11:X:364:LEU:CD2	2.24	0.68
7:Q:809:ARG:HA	7:Q:861:PHE:HB3	1.75	0.68
18:U:88:THR:OG1	21:N:40:DA:P	2.52	0.68
20:B:57:DT:H4'	7:Q:581:LYS:HZ1	1.59	0.68
13:S:88:TYR:CZ	18:U:83:TYR:CD1	2.83	0.67
7:Q:880:ASP:HB2	7:Q:910:VAL:HA	1.76	0.67
16:R:83:ARG:HB3	21:N:50:DT:O3'	1.94	0.67
16:R:83:ARG:NH1	21:N:51:DT:O4'	2.27	0.67
16:R:63:ARG:NE	20:B:91:DA:H5"	2.10	0.67
18:U:87:SER:C	21:N:40:DA:OP1	2.33	0.67
17:T:42:ARG:NE	21:N:39:DG:H4'	2.09	0.66
7:Q:473:TYR:HE2	7:Q:702:VAL:O	1.78	0.66
17:T:57:TYR:OH	18:U:109:HIS:CB	2.43	0.66
17:O:32:ARG:CD	20:B:30:DA:OP2	2.42	0.66
5:G:273:ILE:CD1	5:G:340:LYS:HG2	2.26	0.66
17:O:32:ARG:NH2	20:B:29:DA:C2'	2.57	0.66
7:Q:699:LYS:HA	7:Q:702:VAL:HG22	1.77	0.66
7:Q:698:LEU:HB2	7:Q:701:GLU:HG3	1.77	0.65
16:V:42:ARG:CD	20:B:144:DC:O5'	2.43	0.65
20:B:58:DT:OP2	7:Q:554:PRO:CG	2.43	0.65
21:N:95:DG:OP2	7:Q:608:LYS:CG	2.45	0.65
2:H:304:LEU:HD22	2:H:318:GLN:HG3	1.78	0.65
20:B:54:DC:H4'	7:Q:868:ARG:HG2	0.72	0.65
7:Q:473:TYR:CE2	7:Q:702:VAL:O	2.50	0.65
17:O:28:GLY:HA3	20:B:30:DA:C5'	2.21	0.65
18:Y:56:SER:HB3	20:B:20:DA:OP2	1.96	0.64
17:T:42:ARG:HH11	21:N:39:DG:C5'	2.09	0.64
18:U:33:ARG:NH2	21:N:28:DT:H5'	2.12	0.64
7:Q:809:ARG:HH22	7:Q:853:PHE:HA	1.62	0.64
6:A:170:THR:HG23	11:X:379:LEU:HD22	1.80	0.64
21:N:95:DG:OP2	7:Q:608:LYS:CD	2.46	0.64
17:O:39:TYR:CE1	18:Y:74:ALA:CB	2.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:W:88:TYR:CZ	18:Y:83:TYR:CD1	2.86	0.63
21:N:95:DG:OP1	7:Q:609:LEU:HG	1.97	0.63
7:Q:500:GLY:H	7:Q:903:ARG:HH11	1.46	0.63
6:A:190:PRO:HB3	11:X:437:LEU:HD23	1.76	0.63
13:W:91:LYS:NZ	18:U:71:GLU:OE1	2.26	0.63
17:T:77:ARG:HA	18:U:53:GLY:O	1.97	0.63
18:Y:56:SER:H	20:B:20:DA:P	2.21	0.63
20:B:55:DG:P	7:Q:839:GLY:CA	2.80	0.63
2:H:279:ASP:OD1	2:H:329:MET:HE1	1.98	0.63
13:W:42:GLY:O	16:V:108:ASN:ND2	2.31	0.63
16:R:68:GLN:HE21	16:R:72:ARG:HH21	1.46	0.63
6:A:264:MET:HA	7:J:259:GLN:HE21	1.63	0.62
7:Q:497:MET:SD	7:Q:896:GLN:NE2	2.72	0.62
2:H:439:LYS:NZ	4:I:40:ASP:OD2	2.32	0.62
7:Q:728:GLN:HE21	7:Q:730:LEU:HD12	1.64	0.62
17:T:67:GLY:HA3	18:U:49:HIS:CD2	2.34	0.62
17:T:80:PRO:HB3	18:U:61:ILE:CD1	2.28	0.62
13:S:79:LYS:HD2	20:B:101:DG:O5'	1.98	0.62
7:Q:840:SER:HA	7:Q:846:ARG:HH21	1.64	0.62
13:S:98:TYR:OH	18:Y:68:ASP:OD2	2.14	0.62
20:B:56:DC:OP2	7:Q:840:SER:HB2	1.98	0.62
21:N:96:DT:C3'	7:Q:604:ASN:HD21	2.02	0.62
6:A:238:GLU:O	6:A:238:GLU:HG3	1.99	0.61
7:Q:473:TYR:OH	7:Q:701:GLU:C	2.38	0.61
7:Q:594:MET:HB2	7:Q:622:ARG:HA	1.82	0.61
13:W:72:TYR:HE1	18:Y:80:LEU:HD21	1.62	0.61
13:S:88:TYR:CE1	18:U:83:TYR:OH	2.51	0.61
17:O:64:GLU:CG	18:Y:48:VAL:HG11	2.29	0.61
17:O:24:GLN:HE22	18:Y:47:GLN:HE22	1.48	0.61
17:O:92:GLU:OE1	18:Y:106:LEU:HG	2.01	0.61
16:R:108:ASN:ND2	13:S:42:GLY:O	2.34	0.61
3:M:272:ARG:NE	7:P:314:GLU:CD	2.54	0.61
17:T:15:LYS:CD	21:N:32:DG:OP2	2.49	0.61
20:B:55:DG:OP1	7:Q:839:GLY:CA	2.48	0.61
7:Q:812:MET:CE	7:Q:885:PHE:CE2	2.84	0.61
21:N:96:DT:P	7:Q:607:SER:CB	2.88	0.60
7:Q:564:ILE:HG22	7:Q:564:ILE:O	2.01	0.60
20:B:56:DC:OP2	7:Q:840:SER:HB3	2.00	0.60
6:A:88:ILE:HG13	6:A:91:GLY:H	1.66	0.60
7:P:372:ARG:O	7:P:376:GLN:CG	2.48	0.60
4:I:237:ASN:HB3	4:I:322:VAL:HG12	1.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:B:110:DC:O2	21:N:39:DG:N2	2.35	0.60
6:A:222:PRO:HG3	12:L:758:ASN:HB2	1.84	0.60
2:H:83:PRO:HA	2:D:192:ASP:HB3	1.82	0.60
18:Y:40:TYR:OH	21:N:122:DG:P	2.59	0.60
7:P:333:PHE:HB3	7:P:337:ARG:NH1	2.16	0.60
11:X:437:LEU:HD23	11:X:437:LEU:O	2.01	0.59
13:W:68:ASP:OD1	18:Y:100:LEU:HD22	2.02	0.59
18:Y:33:ARG:HE	21:N:124:DG:H5"	1.59	0.59
6:A:189:VAL:O	11:X:437:LEU:N	2.27	0.59
7:Q:407:GLN:HA	7:Q:411:PHE:HB2	1.85	0.59
7:Q:812:MET:HE3	7:Q:885:PHE:CD2	2.37	0.59
17:O:17:ARG:CG	20:B:31:DT:P	2.85	0.59
7:Q:528:LEU:O	7:Q:846:ARG:NH1	2.36	0.59
17:O:42:ARG:HD3	21:N:112:DG:O3'	2.02	0.59
20:B:55:DG:OP2	7:Q:839:GLY:HA3	2.01	0.59
16:V:42:ARG:HD3	20:B:144:DC:OP1	2.03	0.59
7:Q:722:GLN:HE22	7:Q:766:PRO:HB3	1.68	0.59
6:A:238:GLU:CD	7:J:212:ASN:HD22	2.00	0.59
7:Q:638:TRP:HD1	7:Q:648:ILE:HD12	1.67	0.58
16:V:42:ARG:HB2	20:B:144:DC:OP1	2.02	0.58
7:Q:473:TYR:CD1	7:Q:697:ARG:HD2	2.38	0.58
7:Q:767:PHE:CE2	7:Q:786:LEU:CD2	2.87	0.58
11:X:375:GLU:HB2	11:X:514:HIS:HB2	1.85	0.58
5:G:344:VAL:O	5:G:347:HIS:NE2	2.36	0.58
13:W:98:TYR:CZ	18:U:68:ASP:OD2	2.53	0.58
17:T:42:ARG:NH1	21:N:39:DG:O4'	2.35	0.58
17:O:42:ARG:CA	21:N:113:DA:OP1	2.52	0.58
7:Q:644:VAL:HG12	7:Q:645:LEU:HG	1.86	0.58
20:B:128:DG:H1	21:N:20:DC:H42	1.51	0.58
7:Q:478:LEU:HD11	7:Q:507:SER:HB2	1.85	0.58
7:Q:909:GLU:OE2	7:Q:911:ARG:NH2	2.36	0.58
2:H:279:ASP:OD1	2:H:329:MET:CE	2.51	0.58
3:M:272:ARG:CD	7:P:314:GLU:CD	2.72	0.58
2:H:464:GLU:O	2:H:467:LYS:HB3	2.04	0.58
11:X:438:SER:HB3	11:X:441:HIS:HE1	1.68	0.58
17:T:15:LYS:HE3	21:N:32:DG:OP2	2.04	0.58
7:Q:784:ASP:O	7:Q:785:LEU:HB2	2.04	0.58
18:Y:56:SER:N	20:B:20:DA:OP1	2.37	0.57
7:Q:896:GLN:O	7:Q:900:ARG:NH2	2.37	0.57
16:R:42:ARG:HG3	21:N:144:DC:C5'	2.35	0.57
17:O:32:ARG:CG	20:B:30:DA:P	2.93	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Y:33:ARG:HB2	21:N:124:DG:H5"	1.87	0.57
20:B:11:DC:H42	21:N:137:DG:H1	1.52	0.57
7:Q:564:ILE:HG23	7:Q:569:PHE:HD2	1.70	0.57
5:G:273:ILE:HD12	5:G:340:LYS:HE2	1.87	0.57
6:A:195:TYR:H	6:A:206:SER:HB3	1.70	0.57
13:S:88:TYR:CE2	18:U:83:TYR:CD1	2.92	0.57
7:Q:476:ARG:O	7:Q:480:TRP:N	2.36	0.57
2:H:311:VAL:O	2:H:314:ASN:ND2	2.38	0.57
5:G:338:LYS:O	5:G:341:LYS:HB3	2.05	0.57
13:S:30:THR:HG21	21:N:61:DA:H5"	1.85	0.57
20:B:54:DC:H5"	7:Q:868:ARG:HE	1.69	0.57
6:A:395:ASN:O	7:J:90:GLN:NE2	2.38	0.57
20:B:54:DC:H5"	7:Q:868:ARG:HG2	1.86	0.57
13:W:77:LYS:HE3	18:Y:92:ARG:HH12	1.68	0.57
7:Q:989:ALA:CA	7:Q:992:LYS:HG3	2.31	0.57
2:H:310:SER:OG	2:H:314:ASN:ND2	2.38	0.56
13:W:44:LYS:HE2	17:T:115:LEU:HG	1.87	0.56
17:T:42:ARG:HG3	18:U:88:THR:OG1	2.03	0.56
3:M:272:ARG:NE	7:P:314:GLU:OE1	2.39	0.56
2:H:246:ASP:OD2	5:G:160:HIS:NE2	2.39	0.56
12:L:805:ASN:ND2	12:L:808:ASP:OD2	2.39	0.56
17:T:80:PRO:HG3	18:U:61:ILE:HD12	1.88	0.56
20:B:122:DG:N2	21:N:27:DC:O2	2.39	0.56
7:P:382:LYS:HG3	7:P:382:LYS:O	2.05	0.56
2:H:325:GLU:OE2	7:J:246:LYS:NZ	2.34	0.56
2:H:435:LEU:O	4:I:398:LYS:NZ	2.38	0.56
7:J:128:ASP:OD2	7:J:198:ARG:NH2	2.39	0.56
20:B:27:DT:O2	21:N:122:DG:N2	2.39	0.56
4:I:267:VAL:HG21	4:I:309:GLU:HB2	1.87	0.55
6:A:209:ILE:HG22	6:A:211:LYS:H	1.71	0.55
13:S:78:ARG:HG2	20:B:102:DG:OP1	1.95	0.55
17:T:15:LYS:CD	21:N:32:DG:P	2.93	0.55
17:T:44:GLY:C	20:B:112:DT:OP1	2.44	0.55
16:V:42:ARG:NH2	20:B:144:DC:C2'	2.69	0.55
18:Y:33:ARG:HB3	21:N:124:DG:H5"	1.87	0.55
7:Q:911:ARG:NH2	7:Q:987:ARG:HG2	2.21	0.55
7:Q:482:VAL:O	7:Q:486:ASN:N	2.35	0.55
7:Q:815:GLN:N	7:Q:886:ASP:OD1	2.30	0.55
3:M:257:TYR:OH	7:J:294:LYS:NZ	2.40	0.55
17:T:21:ALA:HB2	18:U:121:TYR:HB2	1.87	0.55
17:O:17:ARG:CG	20:B:31:DT:OP2	2.55	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:Y:39:ILE:CD1	21:N:123:DC:OP2	2.54	0.55
7:Q:986:ALA:HB3	7:Q:992:LYS:CG	2.27	0.55
7:Q:991:GLU:O	7:Q:994:LEU:CA	2.55	0.55
7:Q:991:GLU:CB	7:Q:994:LEU:HD12	2.36	0.55
6:A:238:GLU:HB3	12:L:804:ILE:HD11	1.89	0.55
6:A:484:ASN:HD22	11:X:624:LEU:HD13	1.72	0.55
16:V:83:ARG:CZ	21:N:101:DG:OP1	2.54	0.55
21:N:47:DC:H4'	21:N:48:DC:H5'	1.89	0.55
7:Q:815:GLN:HG3	7:Q:886:ASP:OD2	2.07	0.54
5:G:279:VAL:HG21	5:G:339:ILE:CD1	2.35	0.54
2:H:127:ASN:ND2	2:D:184:THR:OG1	2.40	0.54
17:T:80:PRO:HG3	18:U:61:ILE:CD1	2.37	0.54
7:Q:812:MET:HE1	7:Q:885:PHE:CE2	2.43	0.54
11:X:366:ASN:O	11:X:369:ASN:ND2	2.41	0.54
7:Q:481:MET:O	7:Q:485:TYR:N	2.38	0.54
2:H:446:LYS:NZ	6:A:287:TYR:OH	2.39	0.54
17:T:20:ARG:O	18:U:121:TYR:HA	2.08	0.54
7:Q:459:ASP:HB3	7:Q:475:LEU:HD13	1.89	0.54
7:Q:909:GLU:CD	7:Q:987:ARG:CD	2.75	0.54
12:L:765:THR:HG22	12:L:790:LEU:CG	2.38	0.54
4:I:476:LEU:HD23	4:I:480:GLN:NE2	2.21	0.53
17:O:64:GLU:CA	18:Y:48:VAL:HG11	2.35	0.53
20:B:33:DG:H2"	20:B:34:DG:H5"	1.90	0.53
2:H:272:TYR:OH	2:H:303:ARG:NH1	2.41	0.53
17:O:17:ARG:HG3	20:B:31:DT:OP2	2.09	0.53
18:U:77:ALA:HA	18:U:80:LEU:HD12	1.91	0.53
2:H:475:LEU:HD21	2:D:475:LEU:HD11	1.91	0.53
13:S:88:TYR:CG	18:U:83:TYR:CZ	2.95	0.53
17:T:15:LYS:HD2	21:N:32:DG:OP2	2.09	0.53
16:V:42:ARG:NH1	20:B:144:DC:O5'	2.42	0.53
7:Q:612:THR:O	7:Q:616:TYR:N	2.40	0.53
2:H:271:ARG:NH1	2:H:305:GLU:O	2.42	0.53
3:M:264:ARG:NH2	3:M:303:GLU:OE2	2.40	0.53
20:B:55:DG:C3'	7:Q:840:SER:HB3	2.39	0.53
3:M:551:GLN:NE2	3:M:578:THR:O	2.42	0.53
5:G:158:GLN:O	5:G:164:ASN:ND2	2.42	0.53
11:X:366:ASN:O	11:X:369:ASN:OD1	2.26	0.53
16:V:42:ARG:HH11	20:B:144:DC:P	2.31	0.53
2:H:446:LYS:O	2:H:449:ASP:HB2	2.08	0.53
16:R:66:PRO:HD3	20:B:91:DA:O5'	2.09	0.53
7:Q:471:LYS:NZ	7:Q:703:GLU:OE2	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Q:473:TYR:CE1	7:Q:702:VAL:CG1	2.91	0.52
2:H:421:TYR:O	2:H:424:GLU:HB3	2.08	0.52
2:D:227:ASN:ND2	7:J:244:GLU:OE2	2.38	0.52
16:R:63:ARG:NH2	20:B:91:DA:C5'	2.70	0.52
17:O:85:LEU:O	17:O:89:ASN:ND2	2.42	0.52
7:Q:941:GLN:HA	7:Q:944:LYS:HE3	1.91	0.52
11:X:520:LYS:NZ	11:X:611:SER:OG	2.39	0.52
16:R:66:PRO:HD3	20:B:91:DA:H3'	1.91	0.52
7:Q:473:TYR:HH	7:Q:701:GLU:C	2.12	0.52
2:H:178:LEU:HD11	2:D:195:GLN:HG3	1.90	0.52
6:A:313:ARG:NH1	8:E:16:TYR:O	2.41	0.52
17:O:20:ARG:CZ	20:B:32:DT:OP1	2.56	0.52
18:U:98:VAL:HG13	18:U:102:LEU:HD12	1.90	0.52
4:I:482:ARG:O	4:I:483:LEU:CB	2.56	0.52
2:H:406:LYS:NZ	2:D:396:ALA:O	2.38	0.52
2:D:125:ILE:HG12	2:D:142:VAL:HG21	1.90	0.52
13:W:72:TYR:HE1	18:Y:80:LEU:CD2	2.21	0.52
7:Q:465:LEU:HD22	7:Q:541:TRP:HE3	1.73	0.52
7:Q:485:TYR:OH	7:Q:622:ARG:O	2.28	0.52
7:Q:684:ARG:HA	7:Q:687:HIS:HD2	1.72	0.52
16:R:83:ARG:NH1	21:N:51:DT:C4'	2.73	0.52
7:Q:603:LYS:HE2	7:Q:630:LEU:HA	1.91	0.52
7:Q:813:PHE:HB3	7:Q:867:THR:HG22	1.91	0.52
12:L:765:THR:O	12:L:766:ASP:HB2	2.09	0.52
7:Q:511:TYR:O	7:Q:515:VAL:N	2.37	0.52
6:A:129:GLU:OE2	12:L:869:ARG:NE	2.42	0.51
11:X:431:GLN:HG2	11:X:446:LYS:HB3	1.91	0.51
2:H:453:GLN:O	2:H:456:MET:HB3	2.10	0.51
17:T:57:TYR:OH	18:U:109:HIS:CG	2.63	0.51
17:T:92:GLU:OE1	18:U:106:LEU:CG	2.58	0.51
20:B:57:DT:OP1	7:Q:578:TYR:HE2	1.91	0.51
21:N:113:DA:H2"	21:N:114:DC:H5"	1.91	0.51
2:D:158:ALA:O	2:D:162:LYS:HB2	2.10	0.51
7:Q:896:GLN:HG3	7:Q:900:ARG:HH12	1.73	0.51
7:Q:894:ASP:O	7:Q:898:GLN:N	2.44	0.51
16:R:42:ARG:HG3	21:N:144:DC:H5'	1.91	0.51
7:Q:679:THR:HB	7:Q:683:ILE:HD12	1.92	0.51
7:Q:790:ALA:HB3	7:Q:793:PHE:HB2	1.92	0.51
7:Q:875:ASN:OD1	7:Q:903:ARG:NE	2.43	0.51
7:Q:883:ILE:HG21	7:Q:885:PHE:HE2	1.33	0.51
2:D:143:ARG:HH12	5:G:314:ILE:HD11	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:W:88:TYR:CG	18:Y:83:TYR:CZ	2.99	0.51
7:Q:841:THR:OG1	7:Q:842:LYS:N	2.44	0.51
6:A:18:GLN:OE1	6:A:22:ASN:ND2	2.44	0.51
17:O:32:ARG:HG2	20:B:30:DA:P	2.50	0.51
2:D:469:LEU:HD22	4:I:258:LYS:HD3	1.92	0.51
4:I:220:ILE:HD12	4:I:351:LEU:HD22	1.92	0.51
7:Q:811:LEU:HB2	7:Q:882:VAL:HG13	1.92	0.51
6:A:398:PRO:HD3	7:J:52:SER:HA	1.93	0.51
3:M:82:LEU:HD21	3:M:120:LEU:HD21	1.93	0.50
6:A:445:GLU:O	6:A:449:TYR:N	2.44	0.50
17:O:32:ARG:HH22	20:B:29:DA:C2'	2.20	0.50
20:B:54:DC:H5"	7:Q:868:ARG:CG	2.41	0.50
7:Q:978:ASP:HA	7:Q:981:LEU:HB2	1.93	0.50
2:H:271:ARG:NH1	2:H:306:ASN:OD1	2.40	0.50
18:Y:58:ALA:HA	18:Y:61:ILE:HD12	1.93	0.50
2:H:426:GLN:HB2	2:D:422:ILE:HD11	1.93	0.50
7:J:268:GLN:OE1	7:J:272:ASN:ND2	2.43	0.50
21:N:97:DG:P	7:Q:631:GLN:HE22	2.34	0.50
7:Q:451:ALA:O	7:Q:487:ASN:ND2	2.44	0.50
6:A:112:GLN:HE21	6:A:217:ARG:HD2	1.77	0.50
11:X:438:SER:HB3	11:X:441:HIS:CE1	2.46	0.50
13:S:88:TYR:CG	18:U:83:TYR:CE2	3.00	0.50
17:O:20:ARG:NH2	20:B:32:DT:OP1	2.45	0.50
20:B:58:DT:H4'	20:B:59:DA:H5'	1.94	0.50
2:H:454:LEU:HB3	2:D:454:LEU:HD11	1.94	0.50
16:R:106:ASP:OD2	16:R:131:ARG:NH2	2.37	0.50
17:T:15:LYS:NZ	17:T:16:THR:O	2.42	0.50
7:Q:630:LEU:O	7:Q:892:HIS:NE2	2.45	0.50
7:Q:731:LYS:HA	7:Q:735:LEU:HD12	1.94	0.50
7:Q:909:GLU:HB3	7:Q:987:ARG:CD	2.42	0.50
11:X:447:PRO:HB3	11:X:480:ASN:HD22	1.77	0.50
17:T:42:ARG:HH11	21:N:39:DG:H5'	1.75	0.50
17:O:32:ARG:CZ	20:B:29:DA:C2'	2.90	0.50
7:Q:760:ARG:O	7:Q:764:ASN:ND2	2.45	0.50
9:C:196:PHE:HB3	10:K:160:GLN:HE21	1.76	0.49
13:W:75:HIS:HB2	18:Y:96:THR:HG21	1.93	0.49
13:W:77:LYS:HE3	18:Y:92:ARG:NH1	2.26	0.49
13:S:75:HIS:CE1	18:U:93:GLU:HG3	2.47	0.49
7:Q:478:LEU:CD2	7:Q:507:SER:OG	2.32	0.49
7:Q:988:SER:O	7:Q:989:ALA:HB3	2.12	0.49
17:O:42:ARG:HD3	21:N:113:DA:H5'	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Q:809:ARG:HB2	7:Q:879:ALA:HB2	1.94	0.49
3:M:272:ARG:HD3	7:P:314:GLU:CD	2.33	0.49
17:O:64:GLU:HG2	18:Y:48:VAL:HG13	1.94	0.49
13:W:64:ASN:O	13:W:93:GLN:NE2	2.45	0.49
20:B:57:DT:H4'	7:Q:581:LYS:HZ2	1.72	0.49
5:G:285:CYS:HB2	5:G:292:PHE:HB3	1.95	0.49
13:W:98:TYR:OH	18:U:68:ASP:CG	2.43	0.49
16:V:68:GLN:HE21	16:V:72:ARG:HH21	1.59	0.49
13:S:75:HIS:HD2	18:U:84:ASN:ND2	2.11	0.49
18:Y:40:TYR:OH	21:N:122:DG:O5'	2.30	0.49
20:B:96:DC:H2"	20:B:97:DA:C8	2.47	0.49
7:Q:565:ARG:O	7:Q:589:HIS:NE2	2.46	0.49
5:G:315:VAL:HG13	5:G:320:LEU:HB2	1.95	0.49
3:M:192:LEU:HB3	3:M:245:THR:HG21	1.95	0.49
6:A:190:PRO:CB	11:X:437:LEU:HD22	2.30	0.49
11:X:377:TYR:HB2	11:X:512:GLN:HB3	1.94	0.49
7:Q:767:PHE:CE2	7:Q:786:LEU:HD23	2.48	0.49
17:O:17:ARG:HD2	20:B:31:DT:OP2	2.08	0.48
20:B:55:DG:C2'	7:Q:840:SER:CB	2.78	0.48
7:Q:473:TYR:HD1	7:Q:697:ARG:CD	2.23	0.48
7:Q:797:ASP:HB3	7:Q:1002:ARG:HH22	1.78	0.48
7:Q:988:SER:OG	7:Q:991:GLU:HG3	2.13	0.48
1:F:351:ASP:HB2	1:F:358:HIS:CD2	2.47	0.48
5:G:374:SER:OG	5:G:375:ASN:N	2.46	0.48
16:R:42:ARG:HG3	21:N:144:DC:H5"	1.96	0.48
17:T:42:ARG:CZ	21:N:39:DG:C4'	2.82	0.48
20:B:56:DC:C4'	7:Q:577:GLU:OE1	2.61	0.48
7:Q:522:PHE:HE1	7:Q:592:ALA:HB3	1.77	0.48
7:Q:564:ILE:HG23	7:Q:569:PHE:CD2	2.47	0.48
2:D:231:LYS:HG2	7:J:202:ARG:HH22	1.79	0.48
2:D:460:LYS:HA	2:D:463:LYS:HG2	1.96	0.48
20:B:99:DG:N2	21:N:49:DC:N3	2.59	0.48
7:J:46:ILE:HD13	7:J:79:ILE:HG12	1.95	0.48
7:J:225:ILE:HG23	7:J:229:ASP:HB3	1.95	0.48
13:W:20:LYS:HB2	7:Q:770:ASP:OD2	2.13	0.48
20:B:97:DA:H2'	20:B:98:DA:C8	2.49	0.48
7:Q:525:ILE:HB	7:Q:596:ILE:HA	1.95	0.48
6:A:393:LEU:O	7:J:60:TYR:OH	2.32	0.48
11:X:520:LYS:HZ3	11:X:610:ILE:HB	1.79	0.48
3:M:341:PRO:HG3	3:M:553:ILE:HG23	1.95	0.48
12:L:750:VAL:HG11	12:L:788:GLU:CD	2.32	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:433:VAL:HG11	2:D:429:ILE:HG23	1.95	0.47
3:M:324:THR:O	3:M:328:LYS:HB2	2.14	0.47
11:X:374:THR:OG1	11:X:514:HIS:O	2.30	0.47
2:H:450:LEU:HD13	4:I:50:ARG:HG2	1.95	0.47
2:H:259:ILE:HB	3:M:44:SER:HA	1.95	0.47
7:Q:812:MET:HE3	7:Q:885:PHE:CE2	2.49	0.47
7:Q:911:ARG:NH1	7:Q:984:THR:O	2.44	0.47
16:R:83:ARG:NH1	21:N:50:DT:O2	2.45	0.47
17:T:80:PRO:CG	18:U:61:ILE:CD1	2.93	0.47
7:Q:800:LEU:HD13	7:Q:830:LYS:HD3	1.96	0.47
7:Q:986:ALA:HB3	7:Q:992:LYS:HE2	1.96	0.47
16:R:66:PRO:HG3	20:B:91:DA:P	2.53	0.47
17:O:50:TYR:HD1	18:Y:118:VAL:HG21	1.80	0.47
6:A:487:ILE:HD13	12:L:747:SER:HB2	1.96	0.47
16:R:63:ARG:HG3	16:R:66:PRO:HD2	1.95	0.47
13:S:79:LYS:HD2	20:B:101:DG:C5'	2.45	0.47
17:T:80:PRO:CG	18:U:61:ILE:HD11	2.45	0.47
18:Y:74:ALA:O	18:Y:78:SER:N	2.46	0.47
1:F:371:TRP:O	1:F:434:TYR:OH	2.32	0.47
1:F:410:TYR:CE2	1:F:422:ILE:HG21	2.50	0.47
13:W:72:TYR:CE1	18:Y:80:LEU:CD2	2.94	0.47
17:O:32:ARG:HG3	20:B:30:DA:P	2.55	0.47
20:B:99:DG:H1	21:N:49:DC:H42	1.61	0.47
21:N:89:DT:H2"	21:N:90:DA:C8	2.50	0.47
21:N:97:DG:OP2	7:Q:604:ASN:ND2	2.46	0.47
7:J:123:GLN:OE1	7:J:127:LYS:NZ	2.44	0.47
13:S:47:SER:OG	13:S:48:GLY:N	2.48	0.47
16:V:40:ARG:NH2	21:N:83:DT:C1'	2.77	0.47
2:H:401:LEU:HD22	4:I:427:ARG:HD2	1.97	0.46
20:B:81:DC:N4	21:N:66:DG:O6	2.48	0.46
1:F:384:ILE:HB	2:H:235:TYR:HB2	1.97	0.46
2:D:418:SER:O	2:D:422:ILE:HB	2.15	0.46
3:M:341:PRO:O	3:M:560:LYS:NZ	2.47	0.46
6:A:194:THR:OG1	6:A:229:ASN:OD1	2.26	0.46
13:W:25:ASN:ND2	16:V:73:GLU:OE1	2.48	0.46
7:Q:812:MET:HB2	7:Q:864:LEU:HA	1.98	0.46
16:R:116:ARG:NH1	16:R:118:THR:O	2.49	0.46
18:U:67:ASN:HA	18:U:70:PHE:HB3	1.96	0.46
18:U:81:ALA:O	18:U:85:LYS:N	2.49	0.46
7:Q:1000:LYS:HA	7:Q:1004:ASN:HD22	1.80	0.46
7:Q:470:LEU:HB3	7:Q:475:LEU:HD21	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A:235:THR:OG1	12:L:800:ASN:ND2	2.48	0.46
18:Y:33:ARG:NE	21:N:124:DG:H5"	2.17	0.46
20:B:141:DA:N3	21:N:8:DG:N2	2.64	0.46
21:N:96:DT:H6	21:N:96:DT:H2'	1.54	0.46
17:T:80:PRO:HB3	18:U:61:ILE:HD13	1.97	0.46
17:O:28:GLY:O	20:B:30:DA:OP1	2.34	0.46
6:A:278:THR:OG1	6:A:306:ARG:NH2	2.48	0.46
18:Y:86:ARG:CD	20:B:40:DG:P	3.04	0.46
7:Q:680:LEU:HD22	7:Q:684:ARG:HG3	1.98	0.46
7:Q:842:LYS:HD2	7:Q:845:GLU:HB2	1.97	0.46
2:H:195:GLN:HE22	2:D:175:LYS:HD3	1.81	0.45
5:G:205:PRO:HD2	5:G:337:LEU:HD21	1.98	0.45
16:R:42:ARG:HB3	16:R:43:PRO:CD	2.46	0.45
17:O:24:GLN:N	17:O:56:GLU:OE2	2.48	0.45
3:M:137:ILE:HG21	3:M:155:LEU:HD13	1.99	0.45
17:O:32:ARG:CZ	20:B:29:DA:H2"	2.45	0.45
5:G:358:ALA:HB1	5:G:365:ILE:H	1.81	0.45
6:A:112:GLN:NE2	6:A:215:ASP:OD2	2.50	0.45
6:A:206:SER:OG	6:A:207:SER:N	2.50	0.45
16:R:51:ILE:HD12	13:S:42:GLY:HA2	1.98	0.45
13:S:44:LYS:HB2	17:O:115:LEU:HD13	1.97	0.45
2:H:334:TRP:HE1	4:I:483:LEU:HD21	1.81	0.45
5:G:27:ILE:HG22	5:G:29:ILE:H	1.81	0.45
2:D:325:GLU:OE2	12:L:871:SER:OG	2.28	0.45
12:L:867:GLY:O	12:L:869:ARG:NH1	2.49	0.45
7:P:376:GLN:C	7:P:378:LEU:N	2.70	0.45
16:V:49:ARG:HD2	21:N:9:DT:OP1	2.17	0.45
7:Q:524:VAL:HB	7:Q:573:LEU:HD23	1.98	0.45
7:Q:783:SER:OG	7:Q:784:ASP:N	2.46	0.45
7:Q:851:ASN:O	7:Q:855:ALA:N	2.50	0.45
2:H:454:LEU:HD11	4:I:50:ARG:HD3	1.99	0.45
7:Q:495:ASP:OD1	7:Q:697:ARG:N	2.40	0.45
7:Q:761:LYS:O	7:Q:765:HIS:N	2.42	0.45
5:G:165:ILE:HG12	5:G:171:ILE:HG21	1.99	0.45
16:R:41:TYR:HA	21:N:144:DC:H4'	1.99	0.45
2:D:315:TRP:NE1	2:D:349:ASP:OD2	2.45	0.45
12:L:745:ALA:HB1	12:L:793:ARG:HH22	1.82	0.45
7:Q:684:ARG:HA	7:Q:687:HIS:CD2	2.51	0.45
3:M:215:PHE:O	3:M:218:LEU:HB3	2.17	0.45
4:I:27:VAL:HG12	4:I:29:ASN:H	1.82	0.45
7:Q:896:GLN:HG3	7:Q:900:ARG:HH22	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:135:GLU:OE2	5:G:19:ARG:NH2	2.50	0.44
16:V:42:ARG:CZ	20:B:144:DC:C2'	2.95	0.44
18:Y:40:TYR:HH	21:N:122:DG:P	2.39	0.44
7:Q:593:HIS:CE1	7:Q:621:ASN:HD22	2.35	0.44
7:Q:866:SER:HB3	7:Q:869:ALA:HB3	2.00	0.44
7:Q:809:ARG:HG2	7:Q:861:PHE:HD1	1.83	0.44
13:W:88:TYR:CG	18:Y:83:TYR:CE2	3.05	0.44
17:O:42:ARG:CB	18:Y:88:THR:HG23	2.47	0.44
2:D:432:LEU:HD13	8:E:69:LEU:HD22	2.00	0.44
5:G:17:HIS:HA	5:G:20:LEU:HD12	1.98	0.44
6:A:31:VAL:HG12	6:A:77:ASN:HB2	2.00	0.44
7:J:113:ASP:HA	7:J:116:ASN:HD22	1.82	0.44
17:T:92:GLU:OE1	18:U:106:LEU:CD2	2.66	0.44
1:F:318:ASN:OD1	2:D:71:ARG:NH2	2.48	0.44
3:M:217:GLU:OE2	7:J:287:ARG:NH2	2.43	0.44
13:S:88:TYR:CE2	18:U:83:TYR:CE1	2.98	0.44
20:B:125:DC:H2"	20:B:126:DG:H5"	1.98	0.44
6:A:235:THR:HG22	6:A:235:THR:O	2.18	0.44
2:D:321:LEU:HD23	6:A:476:PHE:HE1	1.83	0.44
17:T:15:LYS:CE	21:N:32:DG:OP2	2.65	0.44
18:U:88:THR:HG1	21:N:40:DA:P	2.18	0.44
20:B:58:DT:OP1	7:Q:554:PRO:HG3	2.11	0.44
7:Q:975:GLU:HA	7:Q:980:GLU:HB2	2.00	0.44
18:Y:56:SER:N	20:B:20:DA:P	2.91	0.44
2:H:72:PHE:HA	5:G:155:LEU:HD22	2.00	0.43
21:N:72:DC:H2"	21:N:73:DA:C8	2.53	0.43
13:W:24:ASP:OD1	13:W:24:ASP:N	2.51	0.43
13:S:78:ARG:HD2	20:B:102:DG:O5'	2.17	0.43
20:B:57:DT:P	7:Q:578:TYR:CE2	3.10	0.43
7:Q:497:MET:HG3	7:Q:899:ASP:HB2	2.00	0.43
7:Q:632:ASN:ND2	7:Q:932:LYS:HB3	2.32	0.43
2:D:143:ARG:HH21	5:G:378:PRO:HD3	1.83	0.43
7:Q:484:LEU:O	7:Q:489:LEU:N	2.49	0.43
7:Q:809:ARG:NH1	7:Q:853:PHE:O	2.45	0.43
7:Q:989:ALA:CA	7:Q:992:LYS:HD2	2.40	0.43
2:D:316:SER:OG	2:D:319:GLU:OE1	2.23	0.43
20:B:140:DC:H2"	20:B:141:DA:N7	2.33	0.43
7:Q:473:TYR:CE1	7:Q:702:VAL:HA	2.22	0.43
7:Q:564:ILE:HG12	7:Q:569:PHE:HE2	1.73	0.43
7:Q:986:ALA:O	7:Q:992:LYS:HE2	2.18	0.43
5:G:20:LEU:HB3	5:G:30:PHE:HD2	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A:191:ILE:HD12	6:A:230:ASN:HB3	2.01	0.43
16:V:40:ARG:CZ	21:N:83:DT:O2	2.64	0.43
16:V:125:GLN:HB3	16:V:134:ARG:HH22	1.82	0.43
21:N:96:DT:P	7:Q:607:SER:HB2	2.59	0.43
7:Q:638:TRP:HZ2	7:Q:655:PHE:H	1.66	0.43
2:H:254:ILE:O	2:H:254:ILE:CG2	2.58	0.43
2:H:426:GLN:NE2	4:I:26:LYS:O	2.52	0.43
9:C:214:ASP:O	9:C:218:ASN:ND2	2.52	0.43
2:D:161:GLU:HG3	2:D:167:ASN:HB2	2.01	0.43
5:G:306:THR:HG22	5:G:308:GLU:H	1.83	0.43
13:W:68:ASP:OD1	18:Y:100:LEU:CD2	2.66	0.43
20:B:111:DC:H42	21:N:37:DG:H1	1.66	0.43
21:N:16:DC:H6	21:N:16:DC:H2'	1.65	0.43
3:M:137:ILE:O	3:M:141:LEU:HB2	2.18	0.43
20:B:54:DC:C5'	7:Q:868:ARG:CG	2.88	0.43
20:B:130:DC:H2"	20:B:131:DA:N7	2.34	0.43
8:E:52:ILE:O	8:E:57:ARG:NH2	2.52	0.43
16:R:83:ARG:HB3	21:N:51:DT:P	2.59	0.43
18:Y:80:LEU:HD23	18:Y:80:LEU:HA	1.86	0.43
6:A:196:GLN:HB3	6:A:227:LYS:HB2	2.01	0.42
13:W:37:LEU:HD23	16:V:61:LEU:HD12	2.00	0.42
16:V:40:ARG:NH2	21:N:82:DG:H21	2.18	0.42
18:U:88:THR:CA	21:N:40:DA:OP1	2.66	0.42
18:U:102:LEU:HA	18:U:103:PRO:HD3	1.89	0.42
18:Y:90:THR:OG1	18:Y:93:GLU:OE1	2.24	0.42
21:N:120:DG:H2"	21:N:121:DA:N7	2.34	0.42
7:Q:784:ASP:O	7:Q:785:LEU:CB	2.67	0.42
7:Q:815:GLN:HG3	7:Q:886:ASP:CG	2.39	0.42
8:E:56:GLU:HA	8:E:59:ARG:HG2	2.01	0.42
20:B:58:DT:P	7:Q:554:PRO:HG3	2.55	0.42
7:Q:729:MET:O	7:Q:733:ASN:N	2.50	0.42
7:Q:787:PHE:HA	7:Q:793:PHE:HB3	2.01	0.42
2:H:178:LEU:HG	2:D:196:GLY:HA3	2.00	0.42
6:A:446:ARG:HH12	7:J:50:ARG:HH21	1.66	0.42
2:D:224:PHE:HZ	7:J:244:GLU:HG2	1.85	0.42
4:I:224:LEU:HD21	4:I:349:ILE:HD12	2.01	0.42
16:R:42:ARG:N	21:N:144:DC:H5'	2.25	0.42
13:S:79:LYS:N	20:B:102:DG:OP1	2.52	0.42
17:T:57:TYR:CG	18:U:113:GLU:HG3	2.53	0.42
7:Q:814:PHE:CA	7:Q:886:ASP:OD2	2.67	0.42
7:Q:991:GLU:HA	7:Q:994:LEU:HG	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:466:GLU:HA	2:H:469:LEU:HD12	2.02	0.42
11:X:524:THR:OG1	11:X:589:GLU:OE1	2.30	0.42
17:T:77:ARG:HG2	18:U:53:GLY:HA3	2.01	0.42
7:Q:477:GLY:HA2	7:Q:480:TRP:HD1	1.84	0.42
4:I:335:VAL:O	4:I:338:THR:OG1	2.35	0.42
5:G:336:ILE:O	5:G:340:LYS:HG3	2.19	0.42
17:O:32:ARG:NH1	20:B:29:DA:H3'	2.34	0.42
18:Y:118:VAL:O	18:Y:122:THR:N	2.50	0.42
20:B:120:DA:H2"	20:B:121:DG:N7	2.35	0.42
7:Q:473:TYR:OH	7:Q:702:VAL:N	2.53	0.42
20:B:56:DC:P	7:Q:840:SER:HB3	2.60	0.42
21:N:110:DA:H1'	21:N:111:DC:H5'	2.01	0.42
2:D:193:THR:HG22	2:D:195:GLN:H	1.85	0.42
16:R:62:ILE:O	16:R:93:GLN:NE2	2.52	0.42
7:Q:496:GLU:O	7:Q:501:LYS:NZ	2.43	0.42
7:Q:937:GLY:HA2	7:Q:941:GLN:HB2	2.01	0.42
7:Q:448:TYR:HA	7:Q:452:HIS:HB2	2.01	0.42
7:Q:586:LEU:HD23	7:Q:586:LEU:HA	1.88	0.42
7:Q:656:GLU:O	7:Q:660:ASN:ND2	2.53	0.42
6:A:133:ARG:NH2	12:L:870:PRO:O	2.53	0.42
17:T:33:LEU:HD23	17:T:33:LEU:HA	1.91	0.42
17:O:64:GLU:HG2	18:Y:48:VAL:CG2	2.50	0.42
7:Q:401:ILE:HA	7:Q:404:LEU:HB2	2.02	0.42
7:Q:629:PRO:HG2	7:Q:940:ILE:HG22	2.02	0.42
2:H:365:ARG:HH22	2:D:221:LYS:NZ	2.17	0.41
3:M:189:LEU:HB2	3:M:242:TYR:HE1	1.85	0.41
6:A:445:GLU:HA	6:A:448:LEU:HB3	2.00	0.41
2:D:354:PHE:HA	2:D:357:LEU:HD13	2.02	0.41
2:D:419:GLU:HA	2:D:422:ILE:HG22	2.02	0.41
6:A:423:LEU:HD23	6:A:426:LEU:HD12	2.02	0.41
7:Q:796:LEU:O	7:Q:830:LYS:NZ	2.53	0.41
2:H:424:GLU:HA	8:E:53:ILE:HD11	2.03	0.41
3:M:110:LYS:HG3	10:K:164:ILE:HG23	2.01	0.41
5:G:278:HIS:HA	5:G:298:TRP:O	2.20	0.41
6:A:38:LYS:HZ3	6:A:51:TYR:HE1	1.68	0.41
11:X:370:ARG:NH2	11:X:496:ASN:OD1	2.40	0.41
2:D:126:ILE:O	2:D:130:ARG:HG2	2.20	0.41
17:O:32:ARG:HG2	20:B:30:DA:OP2	2.16	0.41
18:Y:101:LEU:HD23	18:Y:101:LEU:HA	1.93	0.41
20:B:34:DG:H3'	20:B:35:DT:H71	2.01	0.41
21:N:78:DG:H4'	21:N:79:DT:H5'	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:Q:876:LEU:HD13	7:Q:901:ALA:HA	2.01	0.41
6:A:10:LEU:HD21	6:A:138:ILE:HG21	2.01	0.41
6:A:107:ILE:HG23	6:A:117:TYR:HE1	1.85	0.41
11:X:378:LEU:HB2	11:X:484:TYR:HB2	2.02	0.41
17:O:32:ARG:CG	20:B:30:DA:OP1	2.68	0.41
7:J:225:ILE:HG12	7:J:231:SER:HB3	2.02	0.41
16:R:126:LEU:HD22	16:V:113:HIS:CG	2.55	0.41
20:B:70:DC:H2"	20:B:71:DG:C8	2.55	0.41
7:Q:535:THR:HA	7:Q:538:PHE:HB2	2.03	0.41
7:Q:598:GLU:HB3	7:Q:600:HIS:CE1	2.55	0.41
4:I:422:LEU:HA	4:I:429:THR:HG21	2.02	0.41
17:T:80:PRO:CB	18:U:61:ILE:CD1	2.98	0.41
18:U:80:LEU:HD23	18:U:80:LEU:HA	1.88	0.41
4:I:319:LEU:HA	4:I:322:VAL:HG22	2.03	0.41
6:A:170:THR:HG22	6:A:173:ASP:H	1.86	0.41
21:N:70:DG:H2"	21:N:71:DA:C8	2.56	0.41
21:N:144:DC:H2'	21:N:145:DA:C8	2.56	0.41
7:Q:936:ASP:O	7:Q:940:ILE:N	2.44	0.41
18:U:74:ALA:HA	18:U:77:ALA:HB3	2.02	0.41
18:Y:81:ALA:O	18:Y:85:LYS:N	2.54	0.41
18:Y:100:LEU:HD23	18:Y:100:LEU:HA	1.87	0.41
20:B:101:DG:H2"	20:B:102:DG:C8	2.56	0.41
7:Q:397:LYS:HE3	7:Q:685:ARG:HE	1.86	0.41
6:A:35:PHE:H	6:A:75:THR:HG22	1.86	0.40
11:X:504:PRO:HD3	11:X:624:LEU:HB2	2.02	0.40
13:S:88:TYR:CD1	18:U:83:TYR:CE2	3.06	0.40
7:Q:473:TYR:CE2	7:Q:702:VAL:CB	3.04	0.40
5:G:276:ASP:OD1	5:G:301:ASN:ND2	2.47	0.40
5:G:295:ASN:HB2	5:G:376:TRP:HB2	2.01	0.40
20:B:66:DC:H2"	20:B:67:DG:C8	2.56	0.40
2:H:180:GLY:HA3	2:D:198:LYS:HE2	2.02	0.40
5:G:283:LEU:O	5:G:293:GLU:HA	2.21	0.40
7:Q:872:LEU:H	7:Q:900:ARG:NH1	2.19	0.40
4:I:482:ARG:O	4:I:483:LEU:HB3	2.20	0.40
16:V:42:ARG:HE	20:B:145:DT:P	2.45	0.40
17:O:42:ARG:HB3	21:N:113:DA:P	2.52	0.40
7:Q:521:PRO:HG2	7:Q:591:TRP:HZ3	1.85	0.40
3:M:353:TYR:CZ	4:I:250:ASN:HB3	2.56	0.40
5:G:225:TYR:HD1	5:G:262:LEU:HD12	1.85	0.40
5:G:337:LEU:HA	5:G:340:LYS:HB2	2.03	0.40
16:R:92:LEU:HA	16:R:92:LEU:HD23	1.91	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:S:62:LEU:HD23	13:S:62:LEU:HA	1.86	0.40
16:V:42:ARG:NE	20:B:144:DC:C3'	2.63	0.40
18:Y:77:ALA:HA	18:Y:80:LEU:HD12	2.03	0.40
7:Q:684:ARG:HE	7:Q:958:LEU:HD22	1.86	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	F	116/435 (27%)	102 (88%)	14 (12%)	0	100	100
2	D	295/557 (53%)	280 (95%)	15 (5%)	0	100	100
2	H	387/557 (70%)	356 (92%)	31 (8%)	0	100	100
3	M	378/581 (65%)	349 (92%)	29 (8%)	0	100	100
4	I	236/483 (49%)	218 (92%)	18 (8%)	0	100	100
5	G	238/426 (56%)	213 (90%)	25 (10%)	0	100	100
6	A	357/502 (71%)	321 (90%)	36 (10%)	0	100	100
7	J	229/1359 (17%)	201 (88%)	27 (12%)	1 (0%)	34	72
7	P	67/1359 (5%)	66 (98%)	1 (2%)	0	100	100
7	Q	536/1359 (39%)	483 (90%)	52 (10%)	1 (0%)	47	81
8	E	56/78 (72%)	53 (95%)	3 (5%)	0	100	100
9	C	31/883 (4%)	31 (100%)	0	0	100	100
10	K	40/885 (4%)	38 (95%)	2 (5%)	0	100	100
11	X	139/625 (22%)	126 (91%)	13 (9%)	0	100	100
12	L	79/889 (9%)	69 (87%)	9 (11%)	1 (1%)	12	48
13	S	80/103 (78%)	77 (96%)	3 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	W	86/103 (84%)	81 (94%)	5 (6%)	0	100	100
14	f	391/477 (82%)	382 (98%)	9 (2%)	0	100	100
15	h	46/157 (29%)	43 (94%)	3 (6%)	0	100	100
16	R	94/136 (69%)	90 (96%)	4 (4%)	0	100	100
16	V	93/136 (68%)	92 (99%)	1 (1%)	0	100	100
17	O	105/130 (81%)	102 (97%)	3 (3%)	0	100	100
17	T	102/130 (78%)	101 (99%)	1 (1%)	0	100	100
18	U	91/126 (72%)	88 (97%)	3 (3%)	0	100	100
18	Y	91/126 (72%)	88 (97%)	3 (3%)	0	100	100
19	g	390/467 (84%)	380 (97%)	9 (2%)	1 (0%)	41	77
All	All	4753/13069 (36%)	4430 (93%)	319 (7%)	4 (0%)	54	86

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
19	g	154	ILE
7	J	17	PRO
7	Q	994	LEU
12	L	809	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	F	111/388 (29%)	111 (100%)	0	100	100
2	D	285/500 (57%)	284 (100%)	1 (0%)	91	94
2	H	363/500 (73%)	361 (99%)	2 (1%)	86	92
3	M	349/521 (67%)	348 (100%)	1 (0%)	92	95
4	I	223/435 (51%)	223 (100%)	0	100	100
5	G	226/384 (59%)	225 (100%)	1 (0%)	91	94

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
6	A	343/462 (74%)	342 (100%)	1 (0%)	92 95
7	J	187/1228 (15%)	186 (100%)	1 (0%)	88 93
7	P	63/1228 (5%)	63 (100%)	0	100 100
7	Q	502/1228 (41%)	502 (100%)	0	100 100
8	E	56/75 (75%)	56 (100%)	0	100 100
9	C	32/824 (4%)	32 (100%)	0	100 100
10	K	39/832 (5%)	39 (100%)	0	100 100
11	X	141/578 (24%)	139 (99%)	2 (1%)	67 80
12	L	77/810 (10%)	77 (100%)	0	100 100
13	S	68/79 (86%)	67 (98%)	1 (2%)	65 80
13	W	72/79 (91%)	71 (99%)	1 (1%)	67 80
14	f	356/420 (85%)	355 (100%)	1 (0%)	92 95
15	h	53/140 (38%)	53 (100%)	0	100 100
16	R	84/111 (76%)	84 (100%)	0	100 100
16	V	83/111 (75%)	82 (99%)	1 (1%)	71 83
17	O	84/102 (82%)	82 (98%)	2 (2%)	49 69
17	T	83/102 (81%)	81 (98%)	2 (2%)	49 69
18	U	79/105 (75%)	79 (100%)	0	100 100
18	Y	77/105 (73%)	77 (100%)	0	100 100
19	g	362/423 (86%)	360 (99%)	2 (1%)	86 92
All	All	4398/11770 (37%)	4379 (100%)	19 (0%)	91 94

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	H	250	ASN
2	H	262	THR
2	D	71	ARG
3	M	104	TYR
5	G	172	ARG
6	A	235	THR
7	J	277	ARG
11	X	437	LEU
11	X	438	SER
13	W	23	ARG

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Mol	Chain	Res	Type
14	f	79	ASN
13	S	92	ARG
17	T	32	ARG
17	T	110	ASN
16	V	53	ARG
17	O	58	LEU
17	O	65	LEU
19	g	48	ASP
19	g	304	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (52) such sidechains are listed below:

Mol	Chain	Res	Type
2	H	127	ASN
2	H	167	ASN
2	H	195	GLN
2	H	250	ASN
2	H	314	ASN
2	D	145	ASN
2	D	242	ASN
3	M	206	GLN
3	M	359	HIS
4	I	337	GLN
4	I	432	HIS
4	I	463	ASN
4	I	480	GLN
5	G	352	HIS
6	A	112	GLN
6	A	484	ASN
7	J	90	GLN
7	J	259	GLN
9	C	218	ASN
10	K	160	GLN
11	X	369	ASN
11	X	380	ASN
11	X	480	ASN
11	X	494	ASN
12	L	800	ASN
12	L	810	HIS
14	f	12	ASN
14	f	79	ASN
16	R	68	GLN

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Mol	Chain	Res	Type
13	S	75	HIS
17	T	24	GLN
17	T	110	ASN
16	V	68	GLN
18	U	49	HIS
18	U	84	ASN
18	Y	47	GLN
19	g	81	GLN
19	g	179	GLN
19	g	304	ASN
7	Q	504	GLN
7	Q	593	HIS
7	Q	600	HIS
7	Q	604	ASN
7	Q	621	ASN
7	Q	660	ASN
7	Q	687	HIS
7	Q	722	GLN
7	Q	728	GLN
7	Q	764	ASN
7	Q	808	HIS
7	Q	896	GLN
7	Q	1004	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

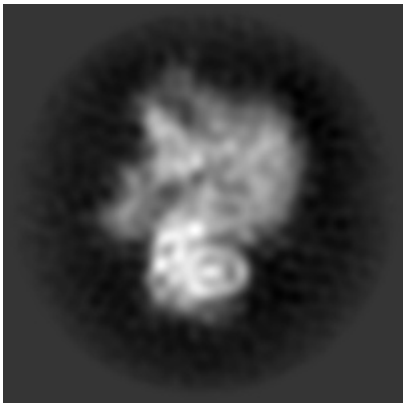
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-0779. These allow visual inspection of the internal detail of the map and identification of artifacts.

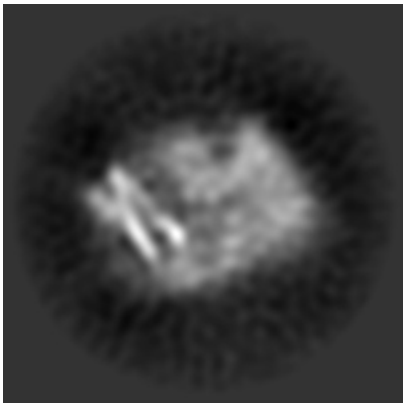
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

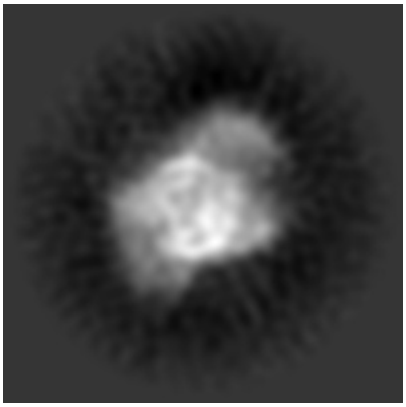
6.1.1 Primary map



X



Y

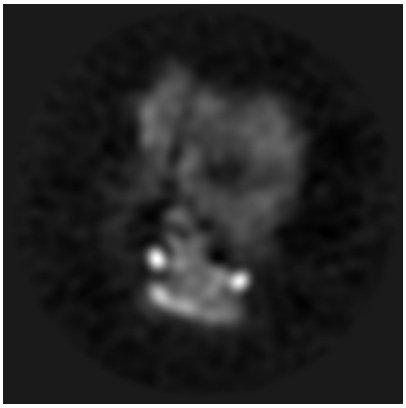


Z

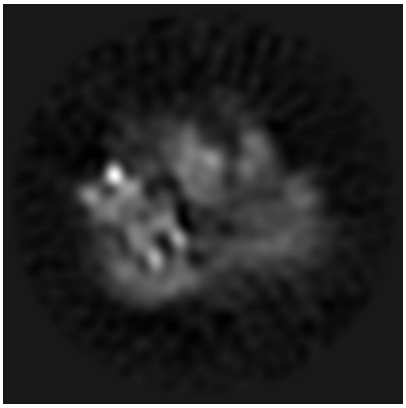
The images above show the map projected in three orthogonal directions.

6.2 Central slices

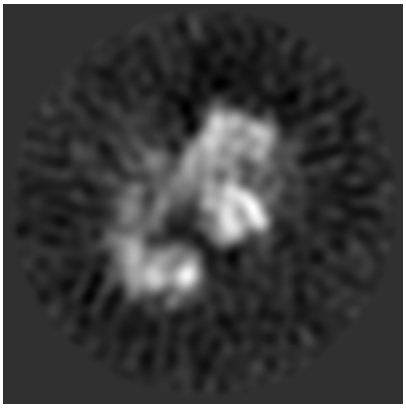
6.2.1 Primary map



X Index: 90



Y Index: 90

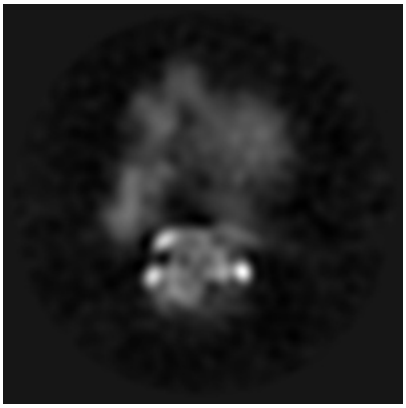


Z Index: 90

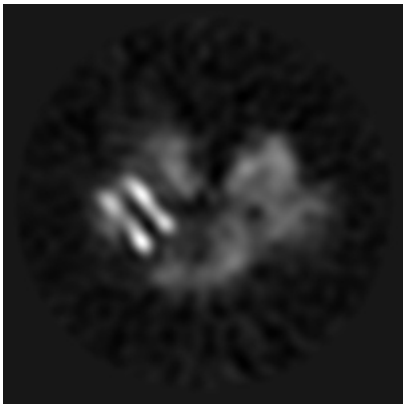
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

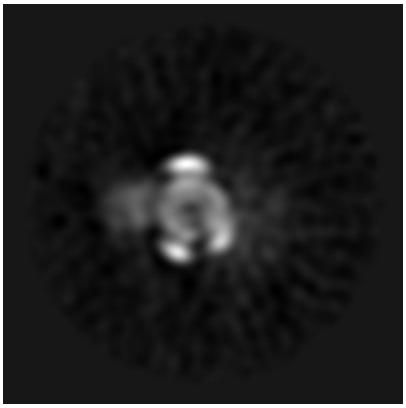
6.3.1 Primary map



X Index: 80



Y Index: 71

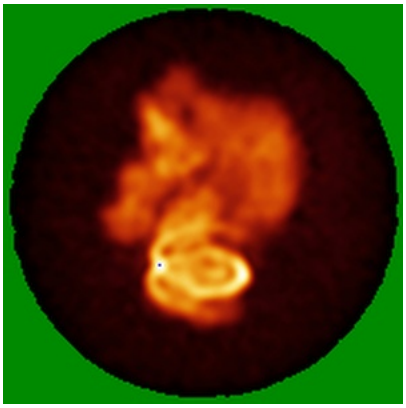


Z Index: 58

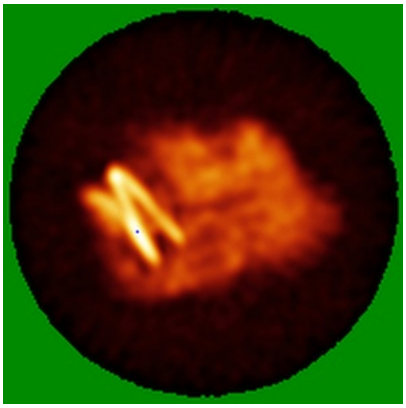
The images above show the largest variance slices of the map in three orthogonal directions.

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

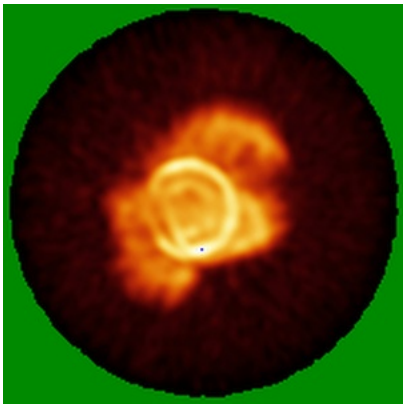
6.4.1 Primary map



X



Y

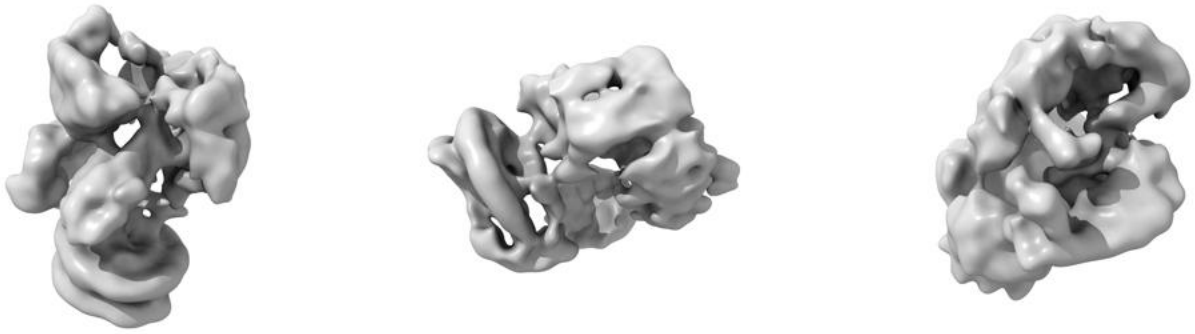


Z

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 0.022. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

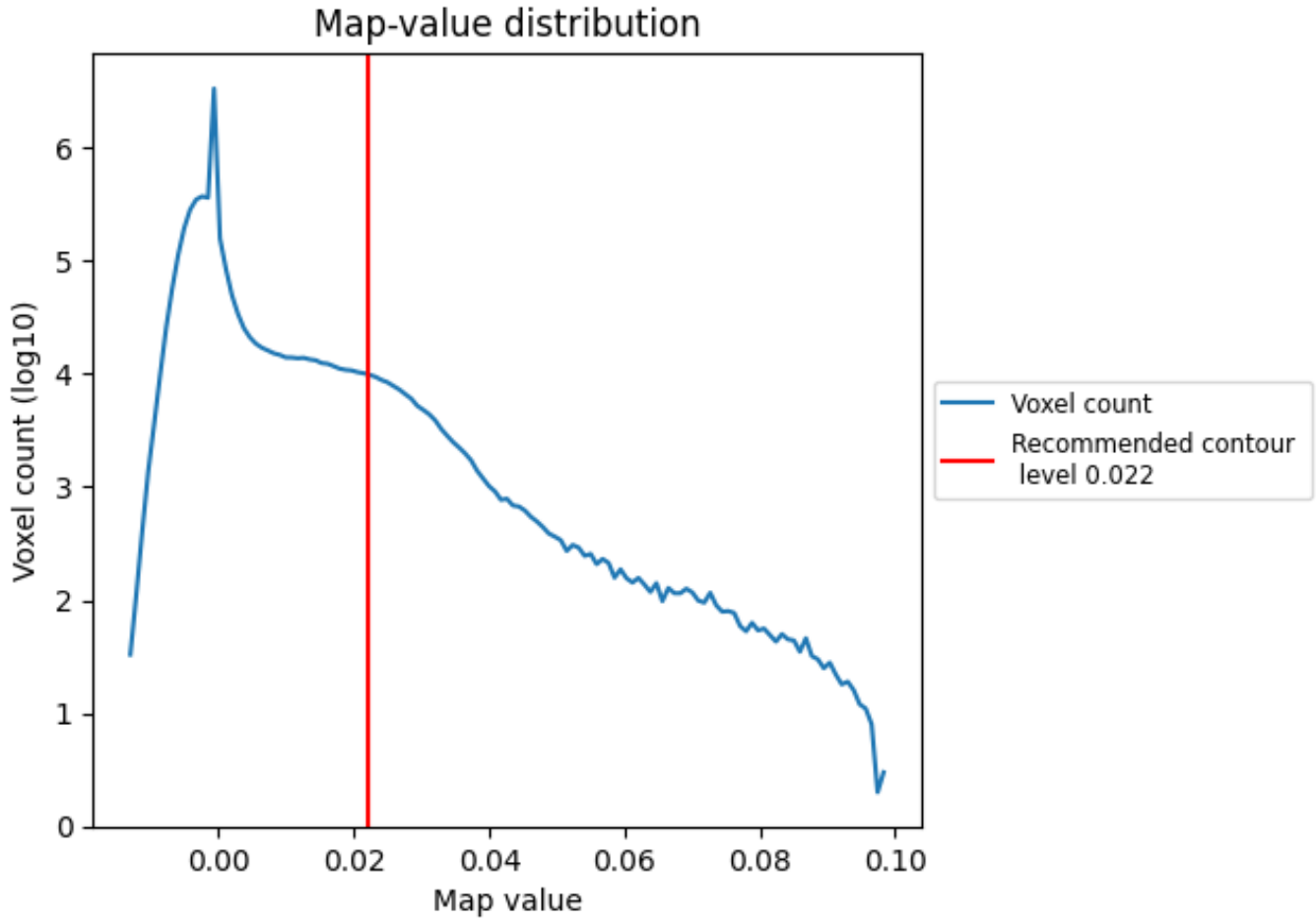
6.6 Mask visualisation (i)

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

7 Map analysis

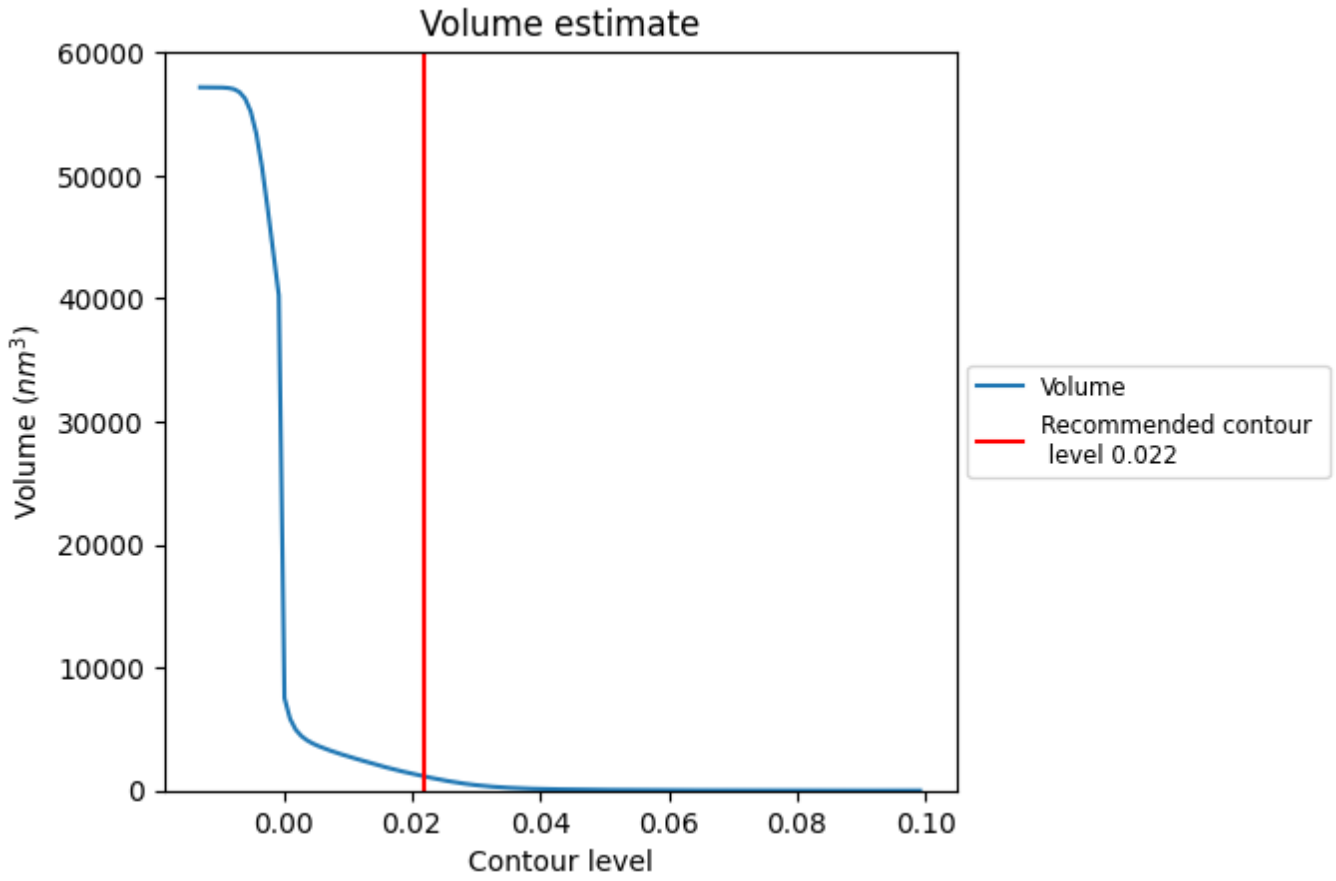
This section contains the results of statistical analysis of the map.

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.

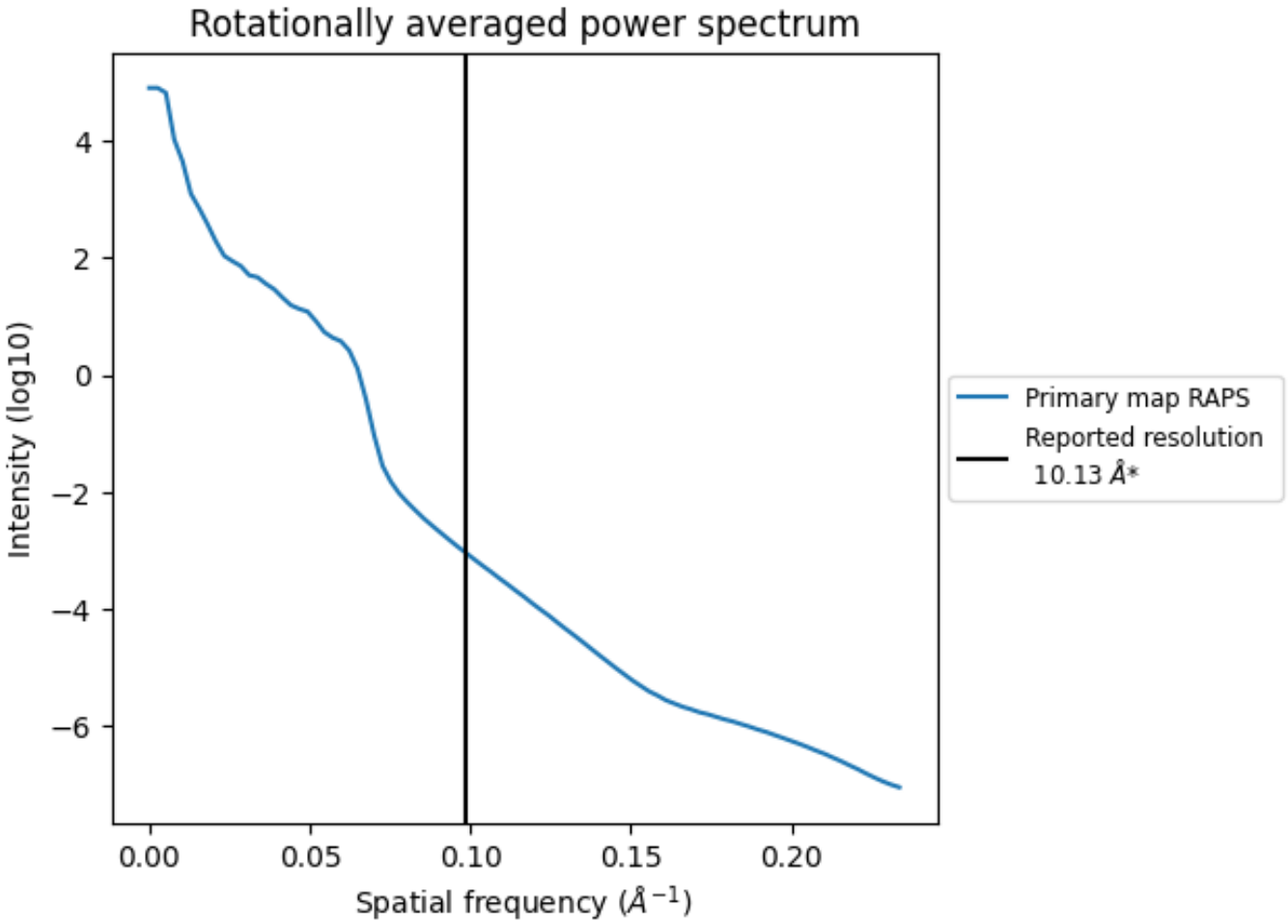
7.2 Volume estimate



The volume at the recommended contour level is 1145 nm^3; this corresponds to an approximate mass of 1035 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 0.099 Å^{-1}

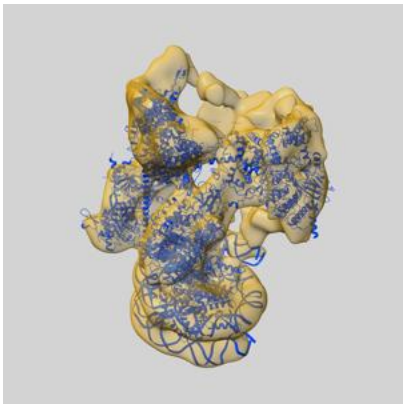
8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

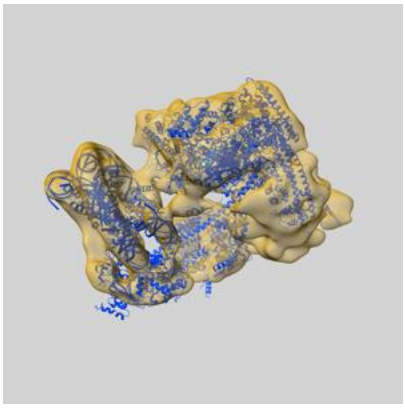
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-0779 and PDB model 6KW5. Per-residue inclusion information can be found in section 3 on page 8.

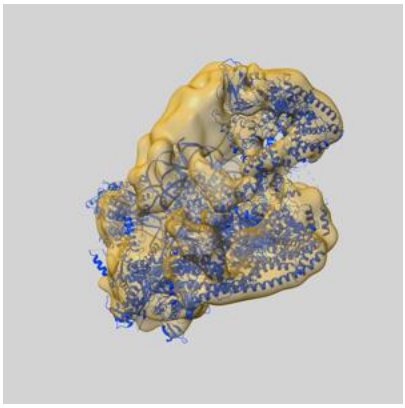
9.1 Map-model overlay



X



Y



Z

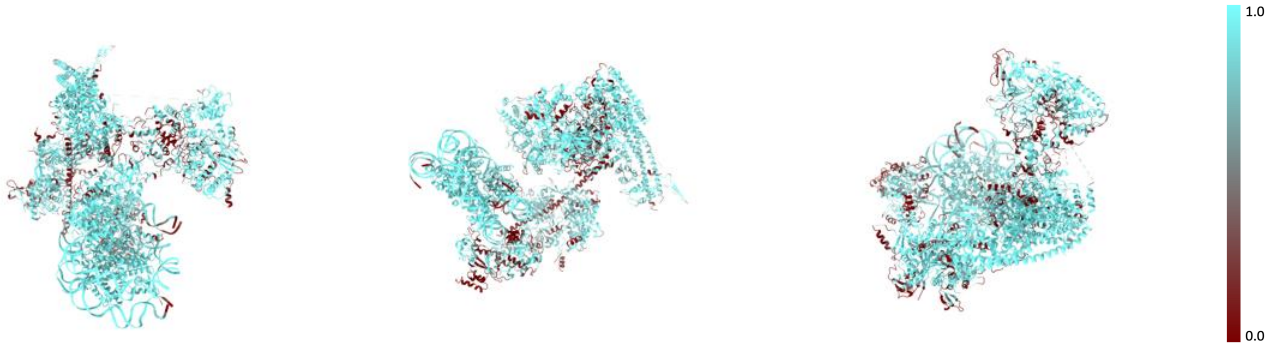
The images above show the 3D surface view of the map at the recommended contour level 0.022 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model (i)

X Y Z

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

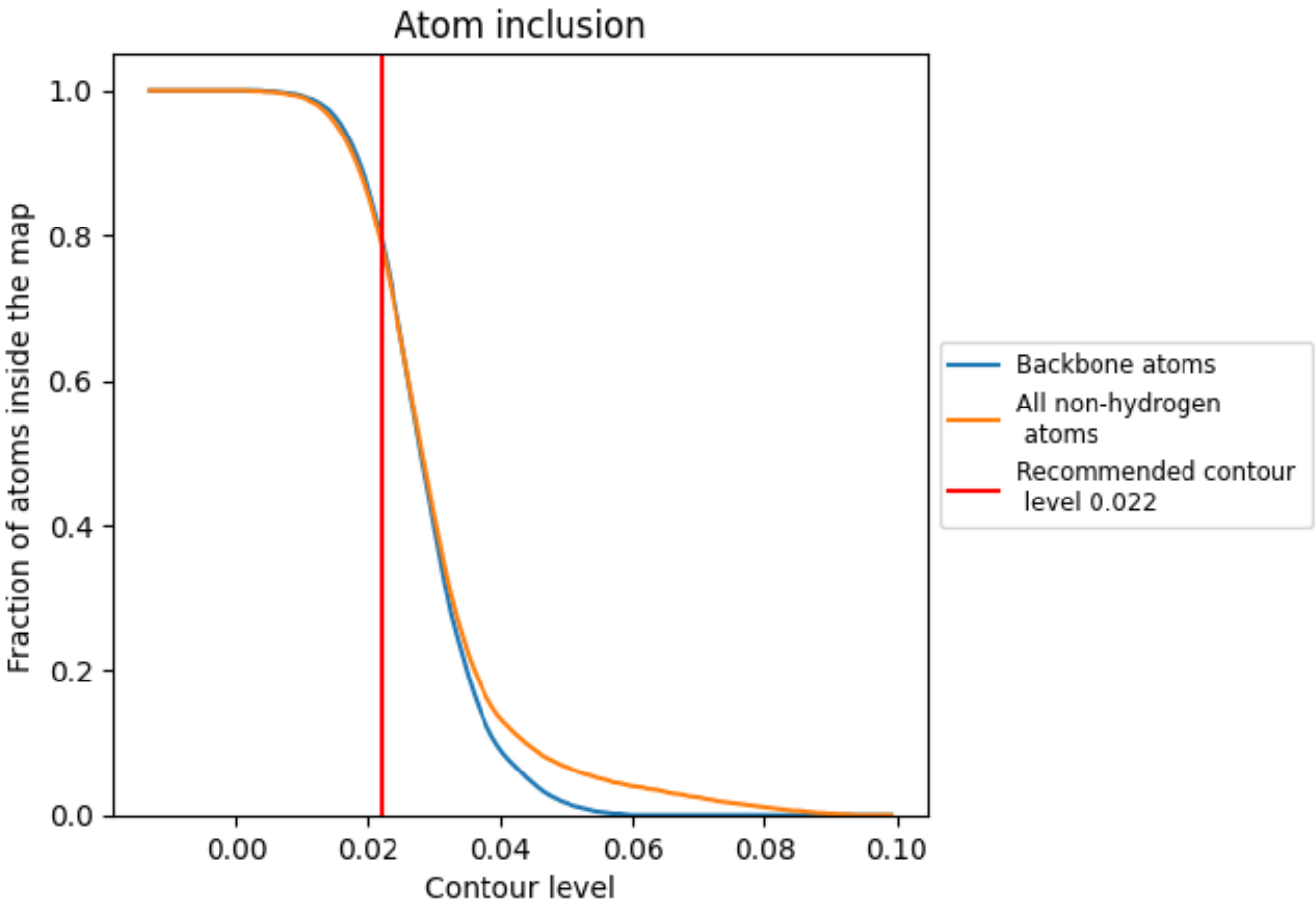
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.022).

9.4 Atom inclusion (i)



At the recommended contour level, 80% of all backbone atoms, 79% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.022) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7880	0.0620
A	0.7660	0.0490
B	0.9270	0.1310
C	0.5200	0.0560
D	0.7980	0.0510
E	0.8890	0.0350
F	0.8490	0.0740
G	0.8630	0.0750
H	0.8410	0.0650
I	0.8240	0.0640
J	0.6160	0.0340
K	0.3000	0.0620
L	0.8090	0.0400
M	0.8050	0.0490
N	0.9270	0.1270
O	0.9810	0.0690
P	0.2500	0.0520
Q	0.5630	0.0360
R	0.9700	0.0290
S	0.9560	0.0740
T	0.8450	0.0490
U	0.9080	0.0560
V	0.9160	0.0430
W	0.9280	0.0710
X	0.6980	0.0520
Y	0.9810	0.0480
f	0.7960	0.0500
g	0.7020	0.0390
h	0.8100	0.0700